National Nuclear Security Administration
Sandia Site Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

ENTERED

NOV 1 8 2004

RECEIVED
NOV 2004
NMED Hazardous
Waste Bureau

Mr. James P. Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. East, Bldg 1
Santa Fe, NM 87505

Dear Mr. Bearzi:

Enclosed is one copy of the responses to 83 comments included in Third Notice of Deficiency HWB-SNL-02-002 for Sandia National Laboratories, EPA ID NM5890110518. Per our verbal agreement, three additional copies will be sent directly to the NMED Sandia Staff Manager.

On June 29, 2004, the U.S. Department of Energy/National Nuclear Security Administration (DOE) and Sandia Corporation (Sandia) received the Third Notice of Deficiency (NOD). It includes a set of 83 comments that list the issues DOE/Sandia should address and the additional information that DOE/Sandia should provide to NMED before NMED can make a determination on the administrative and technical completeness of the Comprehensive Part B Permit Request (Part B) for RCRA-regulated waste storage and treatment operations at Sandia National Laboratories/New Mexico (SNL/NM). The responses were due on August 28, 2004 (60 days). On July 29, 2004, NMED granted DOE/Sandia's request for an extension to the deadline for responding to the comments, and specified that the responses are due on November 29, 2004. In accordance with the revised schedule, DOE/Sandia hereby submits responses to the comments.

DOE and Sandia have also taken the opportunity to correct several errors and to clarify and update information provided in Part 1 of the Part B.

This submittal includes several attachments. Each is discussed below.

Attachment A: Responses to NMED Comments
The 83 individual NMED comments are included, together with DOE/Sandia's responses. The NMED comments pertain to Parts 1, 2, and 5 of the Part B.

Attachment B: Additional Material
DOE letter to U.S. EPA, dated October 30, 2001, requesting approval for risk-based management of regulated polychlorinated biphenyls, submitted in response to NMED Comment 50.

Attachment C: Summary of Corrections and Clarifications
The corrections and clarifications are summarized for NMED convenience in review.

SNL 1043

Attachment D: Engineering Drawings for Buildings 6920 and 6926
DOE and Sandia plan to make physical modifications to the existing Radioactive and Mixed Waste Management Facility during the next three years to increase capacity; the modified facility will be called the Consolidated Waste Management Facility. Operations at the CWMF will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes). Modifications to Buildings 6920 and 6926 will include built-in secondary containment structures, as shown in the attached drawings. The drawings are enclosed to provide supplemental information to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15.

Attachment E: Revised Text and Figures, Redline
Revised pages from Parts 1 and 2 of the Part B are included in redline-strikeout format.

Attachment F: Revised Text and Figures, Clean
Two sections of Part 2 have been extensively revised. The revisions to the rest of Parts 1 and 2 are not extensive in nature; however they affect almost all pages in the volume. Therefore DOE and Sandia have reproduced Volume I in its entirety.

Each copy also includes a CD containing the revised text.

If you have any questions, please contact David Rast at (505) 845-5349.

Sincerely,

Patty Wagner

Patty Wagner
Manager

Enclosure

cc w/enclosure:
M. Gardipe, AL, ERD
W. Moats, NMED-HWB (via Certified Mail)
C. Voorhees, NMED-OB
L. King, EPA Region 6 (2 copies via Certified Mail)

cc w/o enclosure:
M. Reynolds, DOE/SSO
D. Rast, DOE/SSO
J. Estrada, SSO-AIP
K. Thomas, EPA Region 6
L. E. Shephard, SNL, MS 0724, 6000
A. J. Blumberg, SNL, MS 0141, 11100
P. B. Davies, SNL, MS 0701, 6100
K. G. McCaughey, SNL, MS 1114, 6300
J. R. Caruthers, SNL, MS 1037, 6330
F. B. Nimick, SNL, MS 1087, 6132
A. S. Reiser, SNL, MS 1151, 6339
M. J. Davis, SNL, MS 1087, 6132
SNL ISS Records Center, MS 0651, 9612
SSO Legal File

Response to Comments in Third Notice of Deficiency HWB-SNL-02-002 for Sandia National Laboratories, EPA ID #NM5890110518

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

L E Shephard

Les E. Shephard
Vice President, Energy, Information, and Infrastructure Surety
Sandia Corporation
Albuquerque, New Mexico
Co-Operator

11/16/2004
Date signed

Patty Wagner

Patty Wagner
Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Owner and Co-Operator

11-18-04
Date signed

Attachment A

DOE/Sandia Response to NMED Comments

Task # HWB-SNL-02-002
Third NOD

SNL 1043

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	The following are comments on The U.S. Department Of Energy/Sandia National Laboratories **(**DOE/SNL's) response to the notice of deficiency (**NOD**) issued by NMED on October 10, 2002. The first 48 comments relate to waste characterization issues. The remaining non-waste characterization comments are based on SNL's response to the second NOD dated October 10, 2003. DOE/SNL must response to this NOD by providing to NMED the required information and incorporate the responses into the permit application text. This evaluation will reference the U.S. EPA's waste characterization guidance document, *Waste Analysis at Facilities that Generate, Treat, Store and Dispose of Hazardous Waste* as "EPA 1994". NM Hazard Waste Regulations referenced in this NOD simply reference the adopted federal regulation for brevity.	These responses have been prepared by the US Department of Energy (DOE) and Sandia Corporation (Sandia) to address comments in New Mexico Environment Department (NMED) Third Notice of Deficiency HWB-SNL-02-002, dated June 25, 2004 for Sandia National Laboratories, EPA ID No. NM5890110518. The New Mexico Hazardous Waste Regulations in Title 20 of the New Mexico Administrative Code, Chapter 4, Part 1 (20 NMAC 4.1) incorporate federal regulations in Title 40 of the Code of Federal Regulations (40 CFR) Parts 260 through 270. Only the federal regulations are mentioned in the responses (as in the comments) for brevity.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
1	**NOD Comment 15(b), The Site-Wide WAP must discuss waste generator written documentation.** **DOE/SNL's Response:** "Revised Sections B.3.1 and B.3.2 of the WAP include additional information on documentation provided by initial waste generators." **Response Evaluation** The response regarding documentation provided by initial waste generators is partially adequate in that considerable additional information is included at WAP Sections B.3.1 and B.3.2. NMED is concerned however that there is insufficient commitment in the WAP to demonstrate compliance with the documentation retention time requirements of the regulations. 40 CFR § 264.73(b)(3) requires that information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility. That information must include the records and results of waste analyses and waste determinations performed to satisfy, among other things, the general waste characterization requirements of § 264.13, the air emission determinations of Part 264, Subpart CC, and the LDR status determinations of § 268.7. The regulation at § 268.7(a)(6) includes in its description of relevant documentation all supporting data used to determine whether a waste is restricted from land disposal based solely on the generators knowledge of the waste. The regulation at § 268.7(a)(8) requires that a generator retain pertinent waste analysis data and other documentation for a period of at least three years. This retention period applies to waste generators, and does not supercede the document retention requirement at § 264.73(b) which requires owner and operators of permitted hazardous waste management facilities to retain records and results of waste analysis and waste determinations until closure. WAP Section B.3.1.1, paragraph 5 states that "Acceptable knowledge documentation will be maintained at the Unit (unless otherwise specified in the Unit operating record) for at least three years." However General Part B Section 9, *Record Keeping,* Section 9 does commit to maintaining in the operating record records and result of RCRA-regulated waste analysis and determinations (presumably until closure of the facility, though this is not stated). NMED requires that the WAP Section B.3.1.1 statement be altered to clarify that the documentation will be maintained until closure of the unit. Furthermore, the WAP must be altered to specifically commit to maintaining all acceptable knowledge documentation, including all applicable process knowledge documentation as listed at WAP Section B.3.1.1.1. NMED is requiring this because, other than being a regulatory requirement, recent inspections at NM permitted facilities have	The Department of Energy (DOE) and Sandia Corporation (Sandia) have reorganized the material in the Waste Analysis Plan (WAP) (Appendix B to the General Part B) to more effectively group materials related to each topic, and to minimize redundancy. Acceptable knowledge is discussed in revised Section B.3.1 (formerly B.3.1.1). The revised text notes that documentation will be kept in the Unit operating record. Revised Section B.3.2 (formerly B.3.1.1.1) notes that "process knowledge documentation is kept in the operating record of the Unit with other waste characterization information, or in a reference file that includes the documents or identifies them and their locations. The reference file is also part of the operating record." DOE/Sandia note that the physical location of documents that comprise the operating record is discussed in general in Section 9.0 of the General Part B. Some of the records are located in the Units, and some are located in the Sandia National Laboratories/New Mexico (SNL/NM) Records Center. Section 9.0 has been revised to note that historical records are generally located in the SNL/NM Records Center.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	demonstrated either poor retention or the unavailability of AK documentation. WAP Section B.3.1.1.1, 2nd paragraph states "process knowledge for each RCRA-regulated waste or waste stream is kept in a file or a waste/waste stream reference file." The paragraph implies that this information will be/is kept at the relevant permitted hazardous waste management unit, but does not specifically commit to this. To fully understand how SNL is maintaining its hazardous waste operating record, in particular the process knowledge information, NMED requires SNL clarify where the this information is kept.	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
2	**NOD Comment 15(c), The Site-Wide WAP must discuss waste generation processes and control.** **DOE/SNL's Response:** "Waste generation processes are already described in Sections B.1.1 and B.1.3 (formerly B.1.2) of the WAP." **Response Evaluation** The response regarding the waste generation processes and control is partially adequate in that generation processes are discussed in a general manner at WAP Section B.1.2 and twelve waste streams are described at WAP Section B.1.3. The issue of the level of control over a process that generates a waste is not addressed in the response. The issue of the control of the waste generation process is significant with regard to the regulation at 40 CFR § 264.13(a)(3)(i), which requires waste analysis (or characterization) to be repeated when the owner or operator has reason to believe that the process or operation generating the waste has changed. The control over the waste generation process is particularly important for characteristic hazardous wastes whose concentrations are near the level that make them hazardous and with UHC concentrations near or at their respective universal treatment standards. SNL recognizes the significance of control over the waste generation process and its relevance to waste characterization in Section B.1.3 of TTF Permit Renewal Request, Revision 1.0. This Section was omitted from Revision 2.0. Revision 1.0 states "waste that are treated at the TTF are generated as a result of specific procedures and activities that are well defined and well controlled, enabling SNL/DOE to characterize waste streams on the basis of their KOP and the raw materials used." Section B.2.1 of Revision 1.0 provides NMED with confidence that the wastes treated at the TTF are generated under controlled conditions through the statement "wastes treated at the TTF are produced according to documented formulation processes or are known, commercially-manufactured explosives. The composition of the waste is well known. Variability occurs only in the relative amounts of non-explosive waste (e.g., water, alcohol, solvents) contaminated with explosives." Due to the above reasons and SNL's reliance on the use of KOP (a.k.a., acceptable knowledge) in the waste characterization process, NMED requires that the WAP reference a procedure for evaluating the amount of "control", or conversely the amount or variability, in the waste generation process. The WAP shall also specify how the results of this evaluation procedure will become part of the operating record for particular wastes. Furthermore, though the WAP addresses the waste generation processes associated with the wastes treated at the RMWMF and AHCF by describing at Section B.1.4.2 the wastes to be treated and by describing at	Section B.1.3 describes types of waste generated at SNL/NM. Each waste type includes one or more wastes and/or waste streams. The wastes in each waste type share certain characteristics, as described in Sections B.1.3 and B.1.4. Some of the waste types are variable (e.g., laboratory chemicals) and some are more consistent in composition (e.g. batteries). Operations at SNL/NM include some routine operations, and also include a variety of short-term and long-term research and development projects that generate a wide variety of wastes. It is not possible to predict future operations or future wastes. It is generally much more useful to characterize wastes according to type than to control the generating processes. The common characteristics of wastes within a given waste type form the basis for characterization of individual wastes and waste streams within that waste type. Each waste is considered individually, including wastes that are part of waste streams and/or come from routine operations. The information used to characterize the waste may come from many different sources, as described in revised Section B.2 (formerly part of B.3). Information about the generating process is part of the basis for the characterization, but is generally not the only information used. The overall waste characterization process and its objectives are described in revised Section B.2.1 (formerly part of B.3.1). As part of the characterization process, Unit personnel review the information about the generating process and accumulate additional information as needed until they are able to determine whether the waste is a RCRA-regulated waste, assign the appropriate waste codes, and determine management requirements, as described in revised Section B.2.1.1 (formerly part of B.3.1). All of the information used in the waste determination is included in the operating record. Variability and re-evaluation are discussed in revised Section B.2.6 (formerly B.3.1.3). As noted in revised Section B.2.6, the duration of any characterization and its applicability to wastes generated in the future depends on the type of waste. DOE/Sandia have revised the description of treatment processes in Section 8.0 of Modules III and V for treatment operations conducted at the current Radioactive and Mixed Waste Management Facility (RMWMF)/future Consolidated Waste Management Facility (CWMF) and the Auxiliary Hot Cell Facility (AHCF), respectively. These include revised discussions of methods used to determine effectiveness of treatment (Section 8.3 of each module). Section 8.0 of Module II includes a description of treatment operations at the Thermal Treatment Facility (TTF), including a discussion of treatment effectiveness in Section 8.3.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	Sections B.3.2.2 and B.3.3.2 the characterization processes both pre and post treatment respectively, the WAP fails to fully describe the parameters that the wastes managed by these processes will be analyzed for and the rational for the selection of these parameters as is required by 40 CFR § 264.13(b)(1). NMED requires that, at a minimum, SNL incorporate into the WAP the description of the treatment operations provided at the RMWMF Application, Revision 2.0, Section 8.1.	These discussions are not repeated in the WAP. DOE/Sandia note that the Comprehensive Part B Permit Request consists of numerous sections, and the material in the sections is organized in a manner that minimizes redundancy. Thus the treatment processes at a single Unit are described in the module for that Unit. Section B.1.4 includes descriptions of wastes that are generated at SNL/NM and treated on site. Characterization of those wastes is discussed in revised Section B.2.4 (formerly B.3.2). Characterization of treated wastes and treatment residues is discussed in revised Section B.2.5 (formerly B.3.3). The revised sections include a description of the waste characteristics and the characterization methods. These discussions, together with the revised discussions of treatment effectiveness in Modules II, III, and V, provide a complete description of the characterization process and rationale.
3	**NOD Comment 15(d), The Site-Wide WAP must discuss waste characterization using knowledge of process (KOP) and justifying the use of KOP.** **DOE/SNL's Response:** "Knowledge of process and justification for its use are already discussed in Section B.3.1.1.1 of the WAP." **Response Evaluation** SNL's response is inadequate. KOP, or the rationale for using KOP in association with reactive wastes, is discussed in detail at Section B.2.1 of the TTF Permit Renewal Request, Revision 1.0, but is not discussed in the WAP. SNL must rectify this omission. NMED's overall evaluation of SNL's proposed use of KOP (or process knowledge which is a portion of acceptable knowledge) is located at Comments 30 and 31.	The hazardous waste characteristic of reactivity is defined in 40 CFR 261.23. It includes a list of eight properties. Seven of the properties are qualitative in nature, and the other one is a definition. All are best determined through available information (including knowledge of process) regarding the chemical composition of the material (e.g., known or suspected presence of reactive metals), its properties (e.g., water-reactive properties identified by a manufacturer on a material safety data sheet), or its hazardous material definition and class in 49 CFR 173. DOE/Sandia have added reactive constituents to the description in revised Section B.2.1.2 (formerly part of B.3.1) of the types of information initially provided about the waste. The characteristic of reactivity is more thoroughly explained in the footnotes to revised Table B-2 and new Table B-3 (formerly part of Table B-2).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
4	**NOD Comment 15(e), The Site-Wide WAP must discuss waste variability**. **DOE/SNL's Response:** "Waste variability is already included in Table B-1 of the WAP, as indicated by the term "Potential" in the last two columns of that table. A discussion of waste variability and a reference to Table B-1 are included in new Section B.1.2 to further address waste variability." **Response Evaluation** The response regarding waste variability is inadequate because it addresses the variability of waste "types" (i.e., general category used to describe one or more wastes or waste streams that share key features) instead of the variability of wastes or wastes steams themselves. The issue of waste variability is the same issue as control of the waste generation process addressed at Comment 2.	Please see response to Comment 2.
5	**NOD Comment 15(f), The Site-Wide WAP must discuss "derived from" wastes.** **DOE/SNL's Response:** "Wastes "derived from" containment systems and from treated wastes are discussed in new Sections B.1.3.12 and B.3.3." The discussions in Sections B.1.3.12 and B.3.3 fail to reiterate the important characterization requirements for residues derived from treating or storing hazardous wastes specified at 40 CFR § 261.3(c-d). The issue is partially addressed at Section B.3.3.2, *Treated Wastes at the RMWMF and AHCF*, last paragraph, where it states " Treatment residue derived from listed wastes will be handled as RCRA-regulated waste contained with the listed constituents of the original waste…" This language is also applicable for wastes treated at the TTF, as evidenced by Section B.2.2, 3rd paragraph, of the TTF Permit Renewal Request, Revision 1.0, which states "ash residue 'derived from' treated explosive wastes containing spent solvents will be handled as RCRA-regulated waste contaminated with the listed constituents of the original waste." Therefore, the above general language regarding derived from wastes should more appropriately be located in the more general WAP Section, B.3.3.	Revised Section B.2.5 (formerly B.3.3) notes that DOE/Sandia characterize treated wastes and treatment residues by considering both the listed and characteristic wastes that are present in the untreated wastes. Statements in former Sections B.3.3.1 and B.3.3.2 about characterizing residues from treatment of listed wastes have been deleted in revised Sections B.2.5.1 and B.2.5.2.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
6	**NOD Comment 18, Replace discretionary terms such as "may" with mandatory terms such as "will," "must," or "shall".** **DOE/SNL's Response:** "In the revised WAP, discretionary terms (such as "may") have been replaced with mandatory terms (such as "will"), but only where appropriate (e.g., "RCRA waste characterization will occur …"). An asterisk is shown wherever the term "may" ought to remain (e.g., "Debris may be contaminated with or contain …"). **Response Evaluation** SNL's response is adequate. The necessity of utilizing the term "may" under certain circumstances is understood, however NMED requires removal of the asterisk due to it being unnecessary and distracting.	DOE/Sandia have reorganized the material in Appendix B to more effectively group materials related to each topic, and to minimize redundancy. In addition, several parts of the WAP have been revised substantially in response to these New Mexico Environment Department (NMED) comments. Because of previous misunderstandings regarding use of the term "may," DOE/Sandia are concerned that "may" will not be clearly understood in all instances in the revised text. Therefore, the asterisks, although distracting, will be included until the content of the WAP is final.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
7	**NOD Comment 19(g), Discuss the physical distinction between wastewater and non-wastewater.** **DOE/SNL's Response:** "The descriptions of the wastes provided in Section B.1.3 (formerly Section B.1.2) of the revised WAP have been modified slightly, where appropriate, to further address the RCRA-regulated "physical" characteristics (or waste forms) listed in a-q of this comment. In addition, a new Section B.1.4 has been added to the revised WAP to describe the wastes to be treated at SNL. The content and format of information included in the 2001 Biennial Report for Sandia National Laboratories is specified by the instructions for the Report. For example, the following information is required for RCRA-regulated wastes in Form GM in the Report: • Quantity of wastes that were generated and shipped in 2001, generated in 2001 but not shipped, shipped in 2001 but generated earlier. • Waste "form," EPA Hazardous Waste Numbers, waste name, general source code, units of measure, and on-site and off-site management methods used. This information is required in the Report and is accurate for DOE/Sandia operations during 2001. However, it is not useful as a general or specific description of the sorts of RCRA-regulated wastes that are, or are expected to be, generated and managed at SNL/NM Units during the life of the permit. Nor does it provide sufficient information for characterizing wastes for on-site storage and treatment at SNL/NM Units included in the comprehensive Part B permit request." **<u>Response Evaluation</u>** SNL's response is adequate for all physical characteristics except wastewater versus non-wastewater. These two characteristics are a critical aspect of making an appropriate LDR status determination. Regulations at 40 CFR § 268.7 require TSDFs conduct waste analysis to determine the regulatory status of waste with respect to the treatment standards in Part 268, Subpart D (EPA 1994, Section 2.3.6). SNL must alter its WAP to recognize the importance of making a determination whether a hazardous waste is either a wastewater or non-wastewater, reference the criteria for making that determination, and recognize all other waste characteristics relevant to making an appropriate LDR status determination.	"Wastewater" is already part of the waste description where appropriate in Section B.1.3 (i.e., Sections B.1.3.3 and B.1.3.10). In Section B.1.4.2, descriptions of liquid wastes treated in containers at the AHCF and the existing RMWMF/future CWMF have been revised to include "wastewater."

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
8	**NOD Comment 20, The section on proposed analytical parameters and methods should identify specific parameters and methods, and not simply state broad categories of hazardous constituents.** **DOE/SNL's Response:** "Section B.2.1 of the revised WAP has been modified to add "Hazardous characteristics (i.e., ignitability, reactivity, corrosivity)" and to add "(i.e., toxicity characteristic)" to each specification for "RCRA-regulated metals". Table B-2 summarizes the parameters and characterization methods, and Table B-3 specifies the various test methods to be used in analyses for each parameter. Both of these tables were revised to include the additional parameters discussed above. DOE/Sandia note that the site-wide WAP (Appendix B) includes information applicable to all Units. Further, DOE/Sandia have deleted all Unit-specific waste analysis information and incorporated it all into the revised site-wide WAP in response to NMED's global comment and Comment 15 (both NMED comments are included in this response)." **Response Evaluation** SNL's response is partially adequate in that the hazardous characteristics of ignitability, reactivity, corrosivity are now referenced in Section B.2.1. However, adding the caveat "constituents of characteristic and listed waste as defined in 20 NMAC 4.1.100/40 CFR 261.24" behind RCRA-regulated metals, VOCs and SVOCs is both confusing and inappropriate. First, the citation is wrong; it should be 20 NMAC 4.1.200. Second, constituents of listed wastes are not defined at the particular regulatory citation. And third, the bulleted list of parameters at Section B.2.1 fails to include parameters necessary to make an appropriate LDR status determination. To do that for both characteristic and listed wastes, the parameters list (and Table B-2) should include reference to all constituents of concern for the particular waste listed at 40 CFR § 268.40, and for just characteristic wastes, all reasonably expected underlying hazardous constituents (UHCs) included in the table of Universal Treatment Standards at § 268.48. SNL recognizes its responsibility to characterize for these constituents elsewhere in the WAP, specifically at Sections B.1.4, B.3.2.2 (second paragraph), B.3.3 (second paragraph), and B.5.2.	Table B-2 has been revised to provide a more complete summary of all the parameters used in characterizing wastes that are generated at SNL/NM. For each waste type in revised Table B-2, the list of parameters demonstrates how Unit personnel apply the characterization process to the particular waste type. The overall characterization process is described in revised Section B.2.1 (formerly part of B.3.1), and the waste types are described in Section B.1.3. New Table B-3 has been added to summarize the parameters used in characterizing wastes before and after treatment at SNL/NM Units. As in revised Table B-2, the list of parameters for each waste demonstrates how Unit personnel apply the characterization process to the particular waste type and treatment method. The characterization process for wastes to be treated is described in revised Sections B.2.4 and B.2.5 (formerly B.3.2 and B.3.3). The regulatory references in the footnotes to revised Table B-2 and new Table B-3 have been revised and corrected. Table B-2 does not include consideration of treatment standards because this information is not necessary for DOE/Sandia to conduct waste storage activities that require a permit. As noted in revised Section B.6.2.1 (formerly B.5.2.1), DOE/Sandia's waste characterization and storage activities comply fully with the prohibition on storage of wastes that do not meet the treatment standards. New Table B-3 includes treatment standards because achieving them is sometimes one of the goals of the treatment process. As noted in revised Section B.2.5 (formerly B.3.3) treated wastes that will not undergo further treatment on site are characterized to determine compliance with applicable treatment standards (including the presence of underlying hazardous constituents [UHCs] if applicable).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
9	**NOD Comment 25, The WAP must address how it will ensure that storage and treatment units will only receive allowable wastes.** **DOE/SNL's Response:** "All RCRA-regulated wastes generated by Sandia Corporation are listed in the Part A. Section 1.2 of each Unit-specific module indicates which wastes are accepted at that Unit. Section B.1.1 in the revised WAP includes a reference to the Part A; all of the wastes listed in the Part A are acceptable for management at every Unit except the TTF. The TTF is used for management of a RCRA-regulated waste from nearby operations, as described in Module II. RCRA-regulated activities at SNL/NM Units are addressed in the comprehensive Part B permit request. DOE/Sandia may choose to use the Units for activities that are not subject to NMHWA. DOE/Sandia note that 20 NMAC 4.1.500/40 CFR 264.13 does not prohibit a facility from managing non-RCRA-regulated waste. Such activities are outside the scope of a permit issued under NMHWA and are not addressed in the permit request." **Response Evaluation** SNL's response is inadequate. SNL's Part A does not suggest that all wastes listed on that portion of the application are to be treated at every Unit except the TTF. Pages 15-17 of the Part A identify specific wastes that are to be treated by specific processes and presumably at specific units, however it is not possible to determine which. Section 1.2 of each Unit-specific module inappropriately indicates which wastes are accepted at that Unit simply by referring to the Part A. SNL must alter the Part A so that it is possible to determine which wastes are to be treated by specific processes and at which specific units. SNL must also alter the WAP to recognize that only certain wastes may be treated at certain units and address how it will ensure that treatment units will only receive allowable wastes. SNL must also describe the procedure used to comply with 40 CFR § 264.177(c), which requires that storage containers holding a hazardous waste that is incompatible with any other "material" stored nearby in other containers must be either separated or protected from the other material. To comply with this regulation SNL must have a procedure for evaluating the compatibility characteristics of any other "materials" managed in the RCRA-regulated unit, and that procedure must be described in the WAP. If non-hazardous wastes or other materials managed at the unit are potentially incompatible with hazardous wastes managed at the unit, the permit application must describe and commit to the procedures necessary to separate or protect the hazardous wastes. SNL must also respond to this NOD comment by specifying the non-RCRA	DOE/Sandia note that the General Part A does list wastes that are managed at the SNL/NM Units. On-site management at every Unit except the TTF includes storage, and all of the wastes listed in the General Part A can be accepted at every Unit except the TTF for storage. Therefore, it is accurate to state in the introduction of the Unit-specific modules for the Hazardous Waste Management Facility (HWMF), the current RMWMF/future CWMF, the AHCF, and the Manzano Storage Bunkers (MSB) that the General Part A lists the wastes that are accepted for management at that Unit. The statements in Section 1.2 of each module are not intended to imply that all wastes may be accepted for treatment, and have been revised to clarify this. DOE/Sandia have added information about the types of on-site treatment that are conducted for each waste in Column D(2) of pages 5-17 of the Hazardous Waste Permit Information Form in the General Part A to clarify the types of treatment that may be performed on each waste. The operations conducted at each Unit (including treatment) continue to be summarized in Appendix B to the General Part A. Treatment operations are discussed in Section 8.0 of the modules for the TTF, the RMWMF/CWMF, and the AHCF. All Units except the TTF may accept all wastes listed in the General Part A for storage. Treatment is performed at the RMWMF/CWMF and AHCF on wastes that have already been characterized as described in the WAP and accepted at the Units. Wastes that are not suitable for the types of treatment available at the Units are sent to off-site TSDFs for treatment before disposal. Alternatively, DOE/Sandia may request a modification to the operating permit to allow treatment on site. DOE/Sandia often store materials or non-RCRA-regulated wastes at all of the waste management Units except the TTF in order to effectively utilize the space and the features of the Units. In such cases, the chemical characteristics of the materials or non-RCRA-regulated wastes are carefully considered. In order to protect the health and safety of the Unit personnel and members of the public, DOE/Sandia store materials and non-RCRA-regulated wastes according to the principles of the container management standards in 40 CFR 264 Subpart I. For example, ignitable and reactive materials are stored in areas designated for such materials and wastes.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	activities it intends to conduct at the RCRA regulated units, including a brief description of any non-hazardous wastes and the intended management practices. The Department is requiring SNL to submit this information to determine if it is necessary to establish a permit condition under 20.4.1.900 (incorporating 40 CFR 270.32(b)(2)). The Department may use its omnibus authority to impose permit conditions regulating materials that are not hazardous waste or activities tangential to hazardous waste management when proper regulation of hazardous waste management requires it, pursuant to 20.4.1.900 (incorporating 40 CFR 270.32), NMSA 1978, §74-4.2(C) (2002) and 42 U.S.C. § 6925(c)(3).	
10	**NOD Comment 26, The WAP must address if and how different wastes streams will be blended or mixed, and how the resultant blended waste will be characterized.** **DOE/SNL's Response:** "DOE/Sandia activities include mixing and blending RCRA-regulated wastes on a limited basis, as discussed in revised Section B.3.1 of the WAP. The resulting waste is characterized according to the process described in revised Section B.3 of the WAP." **Response Evaluation** SNL's response is partially adequate. Revised Section B.3.1 does describe the mixing/blending of photographic process wastes and aerosol can residuals, but implies that these are simply examples of mixed or blended wastes. SNL must recognize that this mixing/blending process occurring at the "Units" (i.e., storage units) generates new hazardous wastes with new wastes codes, and that these new wastes must also undergo a complete waste characterization, including a hazardous and LDR status determination. WAP Section B.5.2 must be altered to address these LDR considerations.	Characterization of mixed and blended wastes is discussed in revised Section B.2.3 (formerly part of B.3.1.1.2). Personnel adding waste to a container maintain information about the wastes added; this information used in characterizing the contents of the container. The storage prohibition applicable to these wastes is addressed in Section B.6.2.1 (formerly B.5.2.1). As noted in revised Section B.2.5.2 (formerly B.3.3.2), blended residues from aerosol cans are characterized in the same manner as other mixed and blended wastes. These wastes are generated through treatment at the existing RMWMF/future CWMF. DOE/Sandia determine whether these wastes are restricted from land disposal as discussed in revised Section B.6.2.2 (formerly B.5.2.2)

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
11	**NOD Comment 30(b), Training process considerations necessary to meet applicable permit-established performance standards. (40 CFR Section 264.16)** **DOE/SNL's Response:** "Training is discussed in Appendix D and in Section 4.0 (formerly Attachment D) of each Module." **Response Evaluation** SNL's response is inadequate. SNL's WAP at Sections B.3 and B.3.1 describe how integral initial waste generators are in the waste characterization process, yet nowhere in the application, including at the General Part B Appendix D, is there a commitment to train these individuals to properly perform this activity. If SNL wishes to rely on initial waste generators to partially fulfill its obligation for waste characterization under § 264.13, SNL must ensure the initial waste generators have the necessary training to supply adequate characterization information. The training of initial waste generators is justified to be within the scope of a permit due the regulatory language at both 40 CFR § 264.16 and § 270.2. The regulation at § 264.16(a)(1), a general facility requirement and not a unit specific requirement, requires that "Facility personnel must successfully complete a program of classroom instruction of on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this part." The term "facility" is defined at § 270.2 as "any HWM (Hazardous Waste Management) facility or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the RCRA program." NMED therefore requires that SNL alter General Part B, Appendix D to include "initial-waste-generator" as a job title, and describe the training commitments for that title.	DOE/Sandia have revised the description of the waste characterization process to more fully describe the steps taken by Unit personnel as they collaborate with the initial generators to obtain sufficient information to determine whether the solid waste is a RCRA-regulated waste, to assign appropriate waste codes, and to determine management requirements. The process is described in revised Section B.2.1 (formerly part of B.3.1). The Unit personnel performing these duties are identified as "Chemists", and their duties and qualifications are described in the site-wide training plan in Appendix D. Each initial generator provides information in response to questions asked by Unit personnel in writing through a disposal request form or verbally when obtaining additional information. The initial generator does not make any of the determinations identified above, does not perform hazardous waste management activities that require a permit, and therefore does not require training to ensure DOE/Sandia compliance with the requirements of 40 CFR 264.16(a)(1).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
12	**NOD Comment 30(c), Record keeping process considerations necessary to meet applicable permit-established performance standards. (40 CFR Section 264.73 (b)(1))** **DOE/SNL's Response:** "Descriptions and quantities of each RCRA-regulated waste treated or stored are part of the operating record, as indicated in Section 9.0 of the General Part B (formerly Appendix H)." **Response Evaluation** SNL response regarding waste characterization information maintained in the operating record (OR) is partially adequate. SNL must resolve whether acceptable knowledge (AK) documentation will be incorporated into the OR. WAP Section B.3.1.1, final paragraph, states "Acceptable knowledge documentation will be maintained at the Unit (unless otherwise designated in the Unit operating record) for at least three years." Though there is a general reference to maintaining written or electronic "records and results of RCRA-regulated waste analyses and determinations" at General Part B, Section 9.0, *Record Keeping*, there is no specific reference to AK documentation in the Section or elsewhere in the Permit Renewal Request. WAP Section B.3.1.1.1, second paragraph states, "Process knowledge documentation for each RCRA-regulated waste or waste stream is kept in a file or a waste/waste stream reference file that includes the documents or identifies them and their locations." This Section does not specify whether these files are considered part of a unit-specific OR. The regulation at 40 CFR § 264.73(b)(3) requires that records and results of waste analyses and waste determinations must be maintained in the OR until closure of the facility. NMED stresses the importance of clarifying whether and how AK documentation will be incorporated into the OR because during a 2002 inspection of the facility SNL was unable upon request to produce sufficient AK for specific wastes.	Please see response to Comment 1. Acceptable knowledge documentation is maintained as part of the Unit operating record.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
13	**NOD Comment 30(e), LDR notice/record keeping considerations necessary to meet applicable permit-established performance standards. (40 CFR Section 264.73 (b)(12) and (16))** **DOE/SNL's Response:** "Notices and certifications, including those required by 20 NMAC 4.1.500/40 CFR 264.73(b)(12) and (16), are part of the operating record, as addressed in Section 9.0 (formerly Appendix H)." **Response Evaluation** Regarding the notices and certifications required at 40 CFR §§ 264.73(b)(12) and (16), which references §§ 268.7 and 268.9, SNL's response is partially adequate. Section 9.0 of the General Part B, first paragraph, third bullet, ninth dash, commits only to maintaining in the OR the notices and certifications associated with treated wastes, but fails to commit to maintaining similar documentation for on-site generated wastes as required by the regulations. The regulation at 40 CFR § 264.73(b)(16) specifically requires that an on-site storage facility must maintain in its OR until closure "the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under § 268.7 or § 268.9." The regulation at § 264.73(b)(12) addresses on-site treatment facilities and has been sufficiently addressed by SNL. SNL must revise Section 9.0 of the General Part B to include a commitment to maintain in the OR the generator documentation referenced in the regulations. Furthermore, SNL must clarify whether the certification statement committed to in WAP Section B.3.1, 8th paragraph, 5th bullet, will be used to satisfy the above referenced certification statement requirement.	The operating record at SNL/NM includes the notices, certifications, and information listed in 40 CFR 264.73(b)(15) and (16) for storage facilities, and in 40 CFR 264.73(b)(11) and (12) for treatment facilities. The list of items in Section 9.0 of the General Part B has been revised to include those certifications. Revised Section B.2.1.2 (formerly part of Section B.3) includes a description of the information provided by the initial generator, including a certification statement on the disposal request form. The certification does not and is not intended to satisfy the certification requirements in 40 CFR 264.73(b)(12) and (16). It has been deleted from the description of the characterization process to minimize potential confusion.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
14	**NOD Comment 30(m), LDR requirement to provide treatment or storage facility certification statement regarding listed wastes in contaminated soils. (40 CFR Section 268.7 (a)(2)(i))** **DOE/SNL's Response:** "DOE/Sandia will make the applicable notifications and certifications specified in 20 NMAC 4.1.800/40 CFR 268.7(a) for RCRA-regulated wastes treated at the TTF, RMWMF, or AHCF. Text addressing this issue has been incorporated into Section B.5.2.3 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** SNL's response is partially adequate. WAP Section B.5.2.2 does reference a certification process, but no reference is made to soils and the commitment is only for those wastes that have been treated, neglecting hazardous soils that have not undergone treatment. This WAP language reflects SNL's apparent contention that the LDR status of wastes not generated at a hazardous waste storage unit is not relevant to that unit and thus should not be addressed in an application or permit associated with that unit. The regulation at 40 CFR § 268.7 (a)(2) requires generators of wastes or contaminated soils that do not meet their respective LDR treatment standard, to provide specific LDR related information to *each* (emphasis added by NMED) treatment or storage facility. SNL must alter WAP Section B.5.2 to commit to having the notification and certification documents referred to in the above referenced regulation in waste specific files in the operating records of storage and treatment facilities. For additional discussion regarding NMED's position on generator LDR waste characterization see the evaluation at Comments 40.	DOE/Sandia note the Comprehensive Part B Permit Request addresses RCRA-regulated waste management activities that require a permit. Revised Section B.6.2.1 (formerly B.5.2.1) addresses land disposal restrictions (LDRs) for wastes that are stored in SNL/NM Units. For the purpose of conducting waste management activities that require a permit, DOE/Sandia assume that all wastes fail the treatment standards and are subject to LDRs unless proven otherwise through characterization. Thus the LDR status of all wastes stored at SNL/NM Units is established in a manner that is fully compliant with the requirements of 40 CFR Parts 264, 265, 268, and 270. The requirements of 40 CFR 268.7(a) are not applicable to the on-site storage activities conducted at SNL/NM Units under 40 CFR Parts 264 or 265. DOE/Sandia are subject to the requirements in 40 CFR 268.7(b) that apply to wastes treated at SNL/NM Units under 40 CFR Parts 264 and 265. These requirements refer back to parts of 40 CFR 268.7(a); thus parts of 40 CFR 268.7(a) are applicable to treatment activities and treated wastes at SNL/NM. Revised Section B.6.2.2 (formerly B.5.2.2) of the WAP describes DOE/Sandia's process for addressing the additional characterization requirements for wastes that are treated at SNL/NM Units. The description of the operating record in Section 9.0 of the General Part B has been revised to include certifications, notices, and information required for permitted on-site and off-site storage and treatment facilities. Please see response to Comment 13 for additional information.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
15	**NOD Comment 30(o), Notice of waste process changes. (40 CFR Section 268.7 (a)(3)(iii))** **DOE/SNL's Response:** "Please see response to Comment 30(m)." **Response Evaluation** SNL's response is partially adequate. WAP Section B.5.2 does not address the regulation in question but Section B.3.1.3.2 does suggest that when there is any information suggesting there has been a change in the waste, unit personnel will perform a reevaluation of the waste. The WAP does not address how changes in wastes are identified, how this information is transferred from the initial generator to unit personnel, nor does it commit to transferring information regarding changes in the waste generated at hazardous waste management units (i.e., treated or combined wastes) to off-site facilities the receive the waste. The regulation at 40 CFR § 268.7 (a)(3)(iii) requires that, "If the waste changes, the generator must send a new notice and verification to the receiving facility, and place a copy in their files." This regulation identifies information critical to the waste characterization required of all wastes stored at hazardous waste management units and required to be maintained in the unit's operating record by § 264.73(b)(3). NMED therefore requires that SNL revise the permit application to describe how, as a "receiving facility", all SNL hazardous waste storage units will ensure that information regarding changes to wastes managed at the unit are in the unit's operating record. SNL shall also revise the permit application to describe the mechanisms used to insure SNL's generators provide this information in a timely basis.	SNL/NM is a "receiving facility" for wastes generated off site. The information required of off-site generators is described in revised Section B.6.2.3 (formerly B.5.2.3). SNL/NM conducts on-site storage for wastes generated by DOE/Sandia at SNL/NM. As noted in the response to NMED Comment 2, operations at SNL/NM generate a wide variety of wastes. Each waste is considered individually, including wastes that are part of waste streams and/or come from routine operations. The overall waste characterization process and its objectives are described in revised Section B.2.1 (formerly part of B.3.1). As part of the characterization process, Unit personnel review the information about the generating process and accumulate additional information as needed until they are able to determine whether the waste is a RCRA-regulated waste, assign the appropriate waste codes, and determine management requirements, as described in revised Section B.2.1.1 (formerly part of B.3.1). All of the information used in the waste determination is included in the operating record.
16	**NOD Comment 30(p), Process considerations necessary to keep waste analysis information for three years. (40 CFR Section 268.7 (a)(7))** **DOE/SNL's Response:** "It is not clear whether NMED is referring to 20 NMAC 4.1.800/40 CFR 268.7(a)(7) or (a)(8). DOE/Sandia interpret it as (a)(8). Please see response to Comment 30(m)." **Response Evaluation** SNL's response is inadequate. SNL is correct that the focus of the comment is 40 CFR § 268.7(a)(8). However, SNL response referencing the response to Comment 30(m) is inappropriate because the issue is the retention of all LDR related characterization documentation, not just the certification and notification documents referenced at § 268.7(a). Furthermore, the response fails to address the issue of LDR related characterization documentation for stored waste. NMED's position on documentation retention is addressed at the response evaluations at Comments 12, 13, and 14.	Please see responses to Comments 12, 13, and 14, and Section 9.0 of the General Part B for the revised list of documentation.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
17	**NOD Comment 30(q), Process considerations necessary to maintain treatment facilities record of notice to disposal facility of proper treatment and no dilution. (40 CFR Section 268.7 (b)(4))** **DOE/SNL's Response:** "Text addressing this issue has been incorporated into Section B.5.2.3 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** SNL's response is inadequate. The response points to revised WAP language at Section B.5.2.3 which, when addressing waste generated on-site, points to language in Section B.5.2.2. This Section simply commits to meeting the requirements of the off-site TSDF. NMED reiterates its requirement that the WAP describe how SNL will abide with the 40 CFR Section 268.7 (b)(4) requirement that treatment facilities provide notice to disposal facility of proper treatment and no dilution. This regulatory requirement does not consider off-site TSDF waste acceptance criteria.	DOE/Sandia's commitment to meeting the requirements of 40 CFR 268.7(b) continues to be clearly described in revised Section B.6.2.2 (formerly B.5.2.2) for wastes treated at SNL/NM Units. The fourth paragraph of the section states "For wastes generated through treatment at one of the SNL/NM Units, SNL/NM will comply with the applicable requirements of 40 CFR 268.7(b), 268.9(b) and (d), 268.40(c), and 268.49 [10-1-03]." DOE/Sandia also note that the list of documentation that is part of the operating record described in Section 9.0 of the General Part B includes "treatment notices and certifications as specified in 40 CFR 268.7(b), (d), and (e) or 268.9(d)".
18	**NOD Comment 30(r), Process considerations necessary to maintain treatment facilities record of notice to disposal facility of underlying hazardous constituent status (40 CFR Section 268.7 (b)(4)(iv) and (v))** **DOE/SNL's Response:** "Text addressing this issue has been incorporated into Section B.5.2.3 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** SNL's response is inadequate. The response points to revised WAP language at Section B.5.2.3 which, when addressing waste generated on-site, points to language in Section B.5.2.2. This Section simply commits to meeting the requirements of the off-site TSDF. NMED reiterates its requirement that the WAP describe how SNL will abide with the 40 CFR §§ 268.7 (b)(4)(iv) and (v) requirements that treatment facilities maintain record of notice to disposal facility of waste UHCs. This regulatory requirement does not consider off-site TSDF waste acceptance criteria.	Please see response to Comment 17.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
19	**NOD Comment 30(s), Special treatment standards if waste is both listed and characteristic. (40 CFR Section 268.9 (b))** **DOE/SNL's Response:** "DOE/Sandia will make the applicable notifications and certifications specified in 20 NMAC 4.1.800/40 CFR 268.9(b) for RCRA-regulated wastes treated at the TTF, RMWMF, or AHCF. Text addressing this issue has been incorporated into Section B.5.2.3 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** Regarding the 268.9 (b)) special treatment standards if waste is both listed and characteristically hazardous, Section B.5.2.3 does not address the issue, therefore SNL's response is inadequate. SNL appears to have addressed 268.7(b) instead of 268.9(b). SNL must revise the WAP to recognize the special LDR status considerations of a waste that is both listed and characteristically hazardous.	Revised Section B.6.2.2 (formerly B.5.2.2) has been revised to include the requirements of 40 CFR 268.9(b) in characterization of treated wastes.
20	**NOD Comment 30(t), Process considerations regarding de-characterized waste's underlying hazardous constituents. (40 CFR Section 268.9 (d))** **DOE/SNL's Response:** "Text addressing this issue has been incorporated into Section B.5.2.2 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** SNL's response is inadequate. The WAP must be revised to address the applicable regulations associated with wastes that have been de-characterized yet continue to be LDR prohibited.	Section B.6.2.2 (formerly B.5.2.2) has been revised to include the requirements of 40 CFR 268.9(d) in characterization of treated wastes. DOE/Sandia also note that the list of documentation that is part of the operating record described in Section 9.0 of the General Part B includes "treatment notices and certifications as specified in 40 CFR 268.7(b), (d), and (e) or 268.9(d)".
21	**NOD Comment 30(u), Process considerations regarding treatment attainment of the lowest applicable standard for land disposal. (40 CFR Section 268.40 (c))** **DOE/SNL's Response:** "Text addressing this issue has been incorporated into Section B.5.2.2 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** SNL's response is inadequate. WAP Section B.5.2.2 commits only in a general sense to complying with 40 CFR Part 268. The WAP must be revised to commit to complying with the § 268.40(c) requirement to identify the lowest applicable LDR treatment standard for all wastes and to attain the lowest applicable standard if the treatment goal is to attain standards.	Revised Section B.2.4 (formerly B.3.2) describes the characterization process for wastes to be treated at SNL/NM Units. The characterization criteria (including identification of applicable treatment standards) are summarized in new Table B-3. These sections, together with the statement in revised Section B.6.2.2 (formerly B.5.2.2) adequately address the requirements of 40 CFR 268.40(c).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
22	**NOD Comment 32(a), Generator Characterization - the WAP must elaborate on generator characterization procedures for determining whether a waste is hazardous, and if so, what its appropriate waste codes are. (40 CFR Sections 262.11, 268.7 (a)(2) and 268.9 (a))** **DOE/SNL's Response:** "DOE/Sandia will make the applicable notifications and certifications specified in 20 NMAC 4.1.800/40 CFR 268.7(a) and 268.9(a) for treatment residues that are newly generated as a result of treatment of RCRA-regulated wastes at the TTF, the RMWMF, or the AHCF. Text addressing this issue has been incorporated into revised Section B.5.2.3 (formerly Section B.5.3)." **Response Evaluation** SNL's response is partially adequate. The WAP must be revised to include documentation procedures for treated characteristic wastes that are no longer hazardous, which must have a one-time notice and certification placed in the files and sent to NMED in accordance with 40 CFR § 268.9(d).	Please see response to Comment 20.
23	**NOD Comment 32(b), Generator Characterization - the WAP must elaborate on generator characterization procedures for determining all underlying hazardous constituents. (40 CFR Sections 268.7 (a)(2) and 268.9 (a))** **DOE/SNL's Response:** "Please see response to Comment 32(a)." **Response Evaluation** SNL's response is inadequate. The response addresses documentation associated with residues of waste treatment but fails to address all characterization procedures for determining all underlying hazardous constituents (UHCs). 40 CFR § 264.13 requires WAPs address all facility waste characterization procedures to treat, store, or dispose of hazardous wastes. To dispose of characteristic waste properly, it is important to have in place a procedure for determining all UHCs in accordance with § 268.9(a). See Comment 40 response evaluation addendum for additional discussion regarding compliance with LDR requirements.	The overall waste characterization process and its objectives are described in revised Section B.2.1 (formerly part of B.3.1). As noted in revised Section B.2.1.1 (formerly part of B.3.1), the objectives are: • Determine whether a solid waste is a RCRA-regulated hazardous waste, • Assign appropriate waste codes, and • Determine management requirements. Revised Section B.2.4 (formerly B.3.2) describes the characterization process for wastes to be treated at SNL/NM Units. The characterization criteria (including identification of applicable treatment standards and UHCs for wastes that exhibit a hazardous characteristic) are summarized in new Table B-3. The process meets the requirements of 40 CFR 268.9(a).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
24	**NOD Comment 32(c), Generator Characterization - the WAP must elaborate on generator characterization procedures for providing notice of waste process changes. (40 CFR Section 268.7 (a)(3)(iii))** **DOE/SNL's Response:** "Please see response to Comment 32(a)." **Response Evaluation** SNL's response is inadequate. The response addresses documentation associated with residues of waste treatment but fails to address how SNL will ensure proper notice of waste process changes for stored wastes. See the addendum to this evaluation below at Comment 26.	As noted in the responses to NMED Comment 2 and 15, operations at SNL/NM generate a wide variety of wastes. Each waste is considered individually, including wastes that are part of waste streams and/or come from routine operations. The overall waste characterization process and its objectives are described in revised Section B.2.1 (formerly part of B.3.1). As part of the characterization process, Unit personnel review the information about the generating process and accumulate additional information as needed until they are able to determine whether the waste is a RCRA-regulated waste, assign the appropriate waste codes, and determine management requirements, as described in revised Section B.2.1.1 (formerly part of B.3.1). All of the information used in the waste determination is included in the operating record.
25	**NOD Comment 32(d), Generator Characterization - the WAP must elaborate on generator characterization procedures for determining what constitutes acceptable knowledge (AK) and when AK is sufficient to fully characterize wastes. (40 CFR Section 268.7 (a)(1))** **DOE/SNL's Response:** "Please see response to Comment 32(a)." **Response Evaluation** SNL's response is inadequate. The response addresses documentation associated with residues of waste treatment but fails to address how SNL will determine what constitutes acceptable knowledge (AK) and when AK is sufficient to fully characterize wastes, including stored wastes.	Please see response to Comment 2.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
26	**NOD Comment 32 (addendum)** Generator Characterization - Addendum The WAP fails to sufficiently describe how SNL will perform generator required waste characterization procedures to support wastes stored, treated, and generated at its hazardous waste management units. Though the WAP appropriately describes how SNL initial waste generators collaborate with unit personnel to characterize waste destined for storage, and the WAP partially describes the generator characterization requirements for treated wastes, the WAP fails to fully describe the procedures generators must follow to make a LDR status determination, and the WAP fails to recognize that waste may be newly generated during the mixing/blending process described at Section B.3.1. The WAP Introduction states that because SNL does not dispose of hazardous wastes, "this WAP does not address waste characterization necessary or disposal." This reference to waste characterization necessary for disposal appears to refer to the requirement to determine a waste's LDR status. The WAP Section on LDR compliance (B.5.2) addresses treated and off-site wastes but fails to address the 40 CFR 268.7(a) generator LDR status determination requirements for stored on-site wastes. The LDR issues as they relate to generator characterization are addressed separately in an addendum to the response evaluation at Comment 40. SNL will be generating new wastes at the permitted storage facility during the mixing/blending process referenced above. The WAP must therefore describe the waste characterization process for these newly generated wastes, particularly regarding their change in LDR status. WAP Section B.3.1, last paragraph, describes how "unit personnel" combine, mix or blend hazardous and non-hazardous wastes resulting in wastes that can have varying hazardous characteristics. The WAP commits in a very general manner to characterizing the waste (i.e., "as needed for on-site management"). SNL must significantly expand on the process generators of waste must undergo to determine whether a new waste has been formed, whether the waste is hazardous, and the determination of all applicable EPA Hazardous Waste Numbers (a.k.a., waste codes). The permit renewal request must be revised to ensure adherence to the mixture requirements at 40 CFR §§ 261.3(a)(2)(iii) and (iv), 261.3(b) and (g) when hazardous wastes are mixed with solid wastes, and EPA's Contained-In Policy when hazardous wastes are mixed with non-solid wastes. The permit renewal request must also be revised to ensure adherence to the RCRA dilution prohibition during the mixing/blending process. The WAP must be revised to commit to and describe the LDR status	As noted in revised Section B.6.2.1 (formerly B.5.2.1), for the purpose of conducting waste management activities that require a permit, DOE/Sandia assume that all wastes fail the treatment standards unless proven otherwise through characterization. Thus the LDR status of all wastes stored at SNL/NM Units is established in a manner that is fully compliant with the requirements of 40 CFR Parts 264, 265, 268, and 270. The requirements of 40 CFR 268.7(a) are not applicable to the on-site storage activities conducted at SNL/NM Units under 40 CFR Parts 264 or 265. The overall waste characterization process is described in revised Section B.2.1 (formerly part of B.3.1). Supplemental criteria and activities associated with characterization of mixed and blended wastes are described in revised Section B.2.3 (formerly part of B.3.1). Together, the two sections describe a process that addresses identification of hazardous waste and all applicable waste codes for the mixture. The mixing and blending activities change the waste, but do not create a new waste unless the mixture exhibits a new property not present in any of the components. As described in revised Section B.2.3 (formerly part of B.3.1), all the characterization information for each of the components is incorporated into the characterization for the mixture. Thus DOE/Sandia are able to determine whether new properties are present. As noted in revised Section B.2.3, personnel maintain information regarding additions to the waste mixture. This information, together with the practice of describing the mixture with all the codes of the components, meets the requirements of the prohibition on dilution. DOE/Sandia note that mixed and blended wastes can be generated through physical treatment at the RMWMF/CWMF. Such wastes are characterized using the procedures described in revised Section B.2.5 (formerly B.3.3)

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	determination characterization process for stored wastes to avoid unlawful dilution. The example of mixing photographic fixers and developers provided at WAP Section B.3.1 may constitute unlawful dilution dependent upon the reason for the mixing and whether any of the underlying hazardous constituent concentrations are reduced to below their respective universal treatment standards. Recall that the LDR status determination process must be performed at the waste's point of generation in conformance with 40 CFR §§ 268.9(c) and 268.2(i).	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
27	**NOD Comment 34(a), Re-evaluation (40 CFR § 264.13(a)) - Site-Wide WAP Section B.3.1.3 must be revised for quality assurance purposes to include a commitment to perform comprehensive real-time laboratory analysis on all wastes streams originally characterized without comprehensive laboratory analysis (i.e., using process knowledge) at a rate of ten percent of all such waste streams received in a year selected on a rotational basis. Furthermore, the WAP must be revised for quality assurance purposes to include a commitment to perform annual, comprehensive, real-time laboratory analysis on all routinely generated waste streams (definition required). Revise all other Section language accordingly. Re-evaluation must also occur when there is a non-conformance report associated with a particular waste stream.** **DOE/SNL's Response:** "'Waste stream' is defined in revised Section B.1.1. Routine generation is one of the criteria included in the definition, and is one of the criteria used in differentiating wastes from waste streams. DOE/Sandia generate wastes and waste streams for which characterization through sampling and analysis is not appropriate for one or more of the reasons described in Section B.3.1.1. Therefore, DOE/Sandia believe it is not useful (or even feasible) to perform "comprehensive real-time laboratory analysis" of wastes or waste streams for which sampling and analysis is/was not appropriate. Revised Section B.3.1.3 discusses the verification/reevaluation criteria that DOE/Sandia use for wastes (verification of 1% of incoming wastes through various methods) and for waste streams (re-evaluation of 10% annually). If acceptable knowledge, or knowledge of process as a subset of acceptable knowledge, was used for the initial waste characterization, then DOE/Sandia will continue to use acceptable knowledge or knowledge of process for verification and/or reevaluation of the waste." **Response Evaluation** SNL's response is partially adequate. NMED withdraws it suggestion that SNL perform comprehensive real-time laboratory analysis on all wastes streams originally characterized without comprehensive laboratory analysis (i.e., using process knowledge) at a rate of ten percent of all such waste streams received in a year selected on a rotational basis. NMED recognizes that many wastes can be appropriately characterized using acceptable knowledge as described in EPA's WAP guidance (EPA 1994). However, the regulations at 40 CFR § 268.7(b) require treatment facilities "test" their wastes to assure that treatment residue meet the applicable treatment standard. NMED interprets this to require that each and every batch of treatment residue be tested. This requirement is partially	DOE/Sandia note that meeting treatment standards in 40 CFR 268 Subpart D is only one of the goals of treatment performed at each Unit. In general, DOE/Sandia treat wastes to render them safer and/or more amenable to further management on site or off site. Treatment processes at each Unit where treatment is performed are discussed in revised Section 8.0 of the respective Unit-specific modules (Modules II, III, and V for the TTF, RMWMF/CWMF, and AHCF). Effectiveness of the treatment processes is also discussed in revised Section 8.3 of the Unit-specific modules. The methods for determining effectiveness are tailored to each treatment method and its goals. Characterization of treated wastes is described in revised Section B.2.5 (formerly B.3.3). In each case, characterization is consistent with the treatment methods and treatment goals, and it includes sampling and analysis where that is appropriate for determining effectiveness. Wastes that will not undergo further treatment on site are characterized in accordance with the applicable requirements of 40 CFR 268.7(b). DOE/Sandia note that the presence (or successful removal through treatment) of certain hazardous waste characteristics (e.g., reactivity) cannot be evaluated through sampling and analysis. In addition, some treatment standards in 40 CFR 268 Subpart D specify certain technologies (e.g., deactivation and macroencapsulation) and do not consider constituent concentrations. Both of these examples are applicable to wastes treated at SNL/NM Units and clearly illustrate why universal sampling and analysis of treated wastes would not be appropriate for determining treatment effectiveness. As noted in revised Section B.2.6.1 (formerly B.3.1.3.1) DOE/Sandia will verify waste characterization using personnel independent of the initial waste characterization as requested.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	committed to at WAP Section B.3.3 where it states " Other treated waste will be subjected to sampling and analysis to determine the effectiveness of the treatment *as appropriate* (emphasis added by NMED)" This ambiguity, and the WAP Section B.3.1.3.2, second paragraph, second bullet commitment to reevaluate the initial characterization information of treatment residuals *as needed* (emphasis added by NMED), leads NMED to believe that SNL will not test each and every batch of treatment residual. NMED believes that there may be circumstances where it may not be necessary to always test a treatment residual (i.e., when statistical analysis demonstrates with reasonable certainty that a standard treatment process associated with a standard waste always de-characterizes a waste and always results in the same LDR status of the waste). But this circumstance is not addressed in the WAP. NMED is prepared to require analytical testing of each and every batch of treatment residual as a permit condition unless SNL can prescribe an appropriate alternative in the WAP. SNL's process of performing "verification of 1% of incoming wastes through various methods" does not satisfy the regulatory requirement at 40 CFR § 264.13(b)(4) that a WAP specify the frequency with which the initial analysis of a waste will be reviewed to ensure the analysis is accurate and up to date. NMED interprets this as a requirement to perform quality assurance procedures above and beyond those used for standard, initial waste characterization. WAP Section B.3.1.3.1, third paragraph, second sentence suggests that SNL's commitment to verify the characterization of 1% of wastes (non-waste stream wastes) may be satisfied by a simple "visual verification of the container's contents." The verification process described in this paragraph is a standard process that all wastes should undergo, and in fact is redundant with the process described in WAP Section B.3.1, 13th paragraph, *Specify Limits on Decision Errors*, and therefore makes SNL's seemingly appropriate commitment meaningless. The next paragraph is equally meaningless as a verification process in that all wastes characterized via AK must have that AK reviewed for adequacy and collaborated with laboratory data if necessary, not just 1% of wastes. Furthermore, the final bullet of Section B.3.1.3.1, second paragraph commits to performing verification analysis only to obtain information that is "needed for further management of the waste … (verification will be limited to necessary information)." This too is not waste characterization verification. NMED would consider a verification process legitimate if 1% of wastes (non-waste stream wastes) per annum are selected on a random basis to undergo a complete re-characterization by a independent SNL organization using the same characterization methodology used in the initial characterization and the results are certified accurate.	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
28	**NOD Comment 34(b), Re-evaluation (40 CFR § 264.13(a)) - Site-Wide WAP Section B.3.1.3 primarily contains procedures TSFs use to ensure the accuracy of generator waste characterization information. These procedures are already addressed in another section. The second and third paragraphs are simply reiterations of the initial characterization procedures described in Section B.3.1, third paragraph, and can be simply deleted. The fifth paragraph describes waste characterization associated with waste treatment. As Section B.1.2.11 implies, treatment residuals are newly generated wastes that must be characterized as such. Remove the fifth paragraph.** **DOE/SNL's Response:** "Paragraphs 2, 3, and 5 have been deleted from Section B.3.1.3 of the revised WAP." **Response Evaluation** SNL's response is inadequate. WAP Section B.3.1.3 continues to contain procedures described elsewhere in the WAP and used by unit personnel to collaborate with the initial waste generators to perform initial waste characterization. These are not verification procedures. See the response evaluation of Comment 27 (a) directly above.	DOE/Sandia have reorganized the material in Appendix B to more effectively group materials related to each topic, and to minimize redundancy. Much of the text in Section B.3.1 was redundant and has been deleted or substantially revised. The overall waste characterization process and its objectives are described in revised Section B.2.1 (formerly part of B.3.1). As part of the characterization process, Unit personnel review the information about the waste and the generating process and accumulate additional information as needed until they are able to determine whether the waste is a RCRA-regulated waste, assign the appropriate waste codes, and determine management requirements, as described in revised Section B.2.1.1 (formerly part of B.3.1). Revised Section B.2.6 (formerly B.3.1.3) has been revised to more clearly describe verification and reevaluation. It does not describe the process used by Unit personnel for initial waste characterization and is not redundant with text in other sections of the WAP.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
29	**NOD Comment 34(d), Re-evaluation (40 CFR § 264.13(a)) - To demonstrate compliance with 20.4.1.500 NMAC (incorporating 40 CFR Section 264.13 (a)(3)(i)) and 20.4.1.800 NMAC (incorporating 40 CFR Section 268.7 (a)(3)(iii) and 268.7 (b)(3)(i)), the DOE/SNL must provide a description of established Facility Procedures used to identify when processes or operations change for routinely generating hazardous wastes. If procedures do not exist, one must be created and maintained to identify (and flag) when there are changes to the waste generating process or to the raw materials used in the process.** **DOE/SNL's Response:** "As discussed in revised Section B.3.1.3, DOE/Sandia will re-characterize waste streams no later than the first time they are generated following a change in processes that generate them. Characterization of treatment residues that are newly generated as a result of treatment of RCRA-regulated wastes at the TTF, RMWMF, or AHCF is discussed in Section B.3.3." **Response Evaluation** SNL's response is inadequate. It does not address the issue of having a process for determining when a routine waste generation process changes. NMED is concerned that SNL unit personnel will not know when a waste generation process changes significantly enough to change the LDR status of a waste. This concern is based in part on the WAP's poor description of how a waste's LDR status is determined and the lack of description for training, procedures and verification regarding initial waste generators determination of what constitutes a significant process change.	Please see response to Comment 15.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
30	**NOD Comment 35, Acceptable knowledge (AK) commitments do not include mandatory information and processes that will be followed, how AK will be assessed for usability, and when sampling and analysis will occur if AK is not of sufficient quality.** **DOE/SNL's Response:** "Revised Section B.3.1.1.1 includes additional discussion on the use of acceptable knowledge." **Response Evaluation** SNL's response is inadequate. Section B.3.1.1.1 on process knowledge contains no additional or new language that discusses mandatory information and processes that will be followed in determining the adequacy of AK. Therefore the WAP criteria used to determine the adequacy of AK remains insufficient. An example of the remaining ambiguity in the WAP is at Section B.3.1.1 where it states that one of the criteria for the use of AK is that the waste comes "from specific processes that are well documented." SNL's waste characterization quality assurance program is described at WAP Section B.3.1, where at Paragraph 11 it states that unit personnel will determine AK adequacy by using the "criteria listed in Section B.3.1.1." It remains unclear how AK will be used to make an appropriate LDR status determination. SNL uses AK to characterize the majority of its wastes (perhaps greater than 95%). NMED is therefore prepared to mandate through permit conditions the information and processes that will be followed in determining the adequacy of AK. The use of AK to characterize hazardous wastes is contemplated by numerous regulations, including 40 CFR §§ 264.13(a)(2), 268.7(a)(1), and 268.7(a)(6). However, ultimately all waste characterization, including AK, must adhere to the § 264.13(a)(1) requirement that "at a minimum, the analysis must contain *all* (emphasis added by NMED) the information which must be known to treat, store, or dispose of the waste in accordance with this Part and Part 268 of this chapter." Note that the regulation at § 268.7(b) requires that treatment facilities "test" waste for attainment of applicable LDR treatment standards, effectively disallowing the use of AK in this situation. Note also that NMED will require that all wastes use AK, or more specifically process knowledge, as a portion of their characterization (wastes from an unknown source would be excluded from this requirement) and that NMED concurs with EPA's WAP guidance (EPA 1994) which states that sampling and analysis is the preferred method to meet waste analysis requirements due to its accuracy. The regulations at 40 CFR § 264.13(a)(2) state that "analysis may include data developed under Part 261 of this chapter, and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes." Data developed under Part 261	As noted in the response to Comment 2, information used to characterize wastes typically comes from many sources, including information provided by the initial generator and available information that is applicable to the waste type that includes the waste being characterized. Because the operations at SNL/NM generate such a wide variety of wastes, it is not feasible to predict what wastes will be generated or what information will be available or useful in characterizing them. Nor is it feasible to establish arbitrary standards for the information. The items discussed in revised Section B.3 (formerly part of B.3.1) represent the variety of information that could be used in characterizing wastes. The overall waste characterization process for wastes generated at SNL/NM is described in revised Section B.2.1 (formerly part of B.3.1) and the information used is summarized in revised Table B-2. As noted in revised Section B.2.1.2 (formerly part of B.3.1), Unit personnel accumulate sufficient information to answer a series of questions and thereby meet the following characterization objectives, presented in revised Section B.2.1.1: • Determine whether a solid waste is a RCRA-regulated hazardous waste, • Assign appropriate waste codes, and • Determine management requirements. If Unit personnel can answer the applicable questions and meet these objectives using available information, then the information (including acceptable knowledge) is therefore sufficient and adequate for waste characterization. If they cannot, the information is not sufficient and adequate, and they obtain additional information that can include analytical data. The adequacy of the information used by Unit personnel in characterizing wastes is evaluated during the independent review discussed in revised Section B.2.6.1 (formerly B.3.1.3.1). The characterization process presented in Appendix B meets all the requirements of 40 CFR 264.13 that are applicable to permitted waste management activities at SNL/NM Units (i.e., storage and treatment). In summary, the characterization process provides all the information needed to: • meet the objectives listed above, • determine on-site management requirements for wastes that are restricted from land disposal, • determine whether wastes are suitable for on-site treatment,

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	includes the constituents that cause an F or K listed waste to be either a Toxicity Characteristic of Toxic Waste as identified at Appendix VII of that Part. (Note that AK may often be used to identify hazardous constituents in waste but less often can it be used to determine the relationship of those constituents to their LDR treatment standards). The regulatory language at § 268.7(a)(1) states that the process of determining whether a waste meets its respective LDR treatment standard can be made "using knowledge of the waste." Clearly AK and not testing is a more appropriate characterization method if a waste's treatment standard is identified at § 268.40 as a particular treatment technology or method. The regulations at 40 CFR § 268.7(a)(6) require that if a generator determines that the waste is restricted based solely on his knowledge of the waste, "all supporting data used to make this determination must be retained on-site in the generator's files." NMED considers this "AK" type information the "records and results of waste analysis and waste determinations" referenced at § 264.73(b)(3) at thus required to be maintained in the facility's operating record. SNL's propensity to use AK to characterize wastes was demonstrated during a February 2003 NMED inspection that included scrutiny of the Hazardous Waste Management Facility's operating record, particularly its waste characterization information. When asked to produce all waste analysis laboratory reports for wastes managed at the HWMF, SNL could only provide reports associated with used oils and these only evaluated the concentrations of RCRA metals but not other possible underlying hazardous constituents. It appears that at the time of the inspection all other hazardous waste characterization for wastes managed at that unit was based on AK.	• determine whether the treatment was effective, and • determine further management requirements for treated wastes. The process is also consistent with the direction presented in EPA's "*Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes: A Guidance Manual*", OSWER 9938.4-03 (EPA, 1994). Testing treated waste and determining effectiveness of treatment is discussed in the response to Comment 27. DOE/Sandia note that process knowledge is appropriate for evaluating the effectiveness of certain kinds of treatment (such as deactivation) that cannot be measured through sampling and analysis of the treated waste. Sampling and analysis are used where appropriate for characterizing treated waste, as described in revised Section B.2.5 (formerly B.3.3) and summarized in new Table B-3. As noted in the response to Comment 1, information and documentation used in characterizing wastes is maintained in the operating record.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
31	**NOD Comment 37, Revise the Site-Wide WAP to include very specific criteria for determining acceptability when AK is used to determine attainment of the very low concentration LDR treatment standards.** **DOE/SNL's Response:** "Revised Section B.5.2.2 (formerly Section B.5.3) includes a reference to Section B.3.1.1 regarding acceptable knowledge. Section B.3.3 has also been revised to note when treated wastes will be characterized using acceptable knowledge or other non-analytical methods (e.g. when certain treatment technologies are specified and used to treat a waste)." **Response Evaluation** SNL's response is inadequate. NMED's evaluation of Section B.3.1.1 is provided in the response evaluation for Comment 30, which states that the Section contains insufficient discussion of mandatory information and processes that will be followed in determining the adequacy of AK. Section B.3.3 must be revised to include sufficient information regarding whether AK or sampling and analysis will be used to characterize specific treatment residuals. Section B.3.3.1 refers to a process of "visually screening" explosive residues to ensure the elimination of reactive and ignitable characteristics, but fails to address how residual silver from SASN will evaluated other than "to meet the requirements of the off-site TSDF." 40 CFR § 268.7(b) requires treatment facilities test wastes with treatment standards expressed in the waste extract (D011, silver) using specific test methods to assure that the residual meets the applicable treatment standard. Section B.3.3.2 must be revised to explain how wastes treated by chemical deactivation at the RMWMF and AHCF will be characterized to determine their LDR status. The Section (or a separate submittal) must explain why wastes treated by macroencapsulation need only be characterized by visual examination. This explanation must discuss characterization for both a hazardous waste and LDR status determination. The Section must be revised to explain how wastes treated by amalgamation are characterized to determine whether it meets the treatment standard(s).	As noted in the response to Comment 2, Section 8.3 of Modules II, III, and V include revised discussions of methods used to determine effectiveness of treatment. The methods for determining effectiveness are based on the type of treatment and its goals (which may include meeting treatment standards). Section B.1.4 includes descriptions of wastes that are generated at SNL/NM and treated on site. Characterization of those wastes is discussed in revised Section B.2.4 (formerly B.3.2). Characterization of treated wastes and treatment residues is discussed in revised Section B.2.5 (formerly B.3.3). The revised sections include a description of the waste characteristics and the characterization methods. The characterization methods and rationale are summarized in new Table B-3. The characterization discussions in revised Section B.2, together with the revised discussions of treatment effectiveness in Section 8.3 of Modules II, III, and V, provide a complete description of the characterization process and rationale for all the wastes treated at SNL/NM Units, including the ash from the TTF, and the wastes treated by chemical deactivation or macroencapsulation at the existing RMWMF/future CWMF and the AHCF. With respect to macroencapsulation, DOE/Sandia note that the effectiveness determination (visual inspection) is based on the definition of the technology in40 CFR 268.42 and 268.45.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
32	**NOD Comment 40, The treatment section of the WAP must identify all waste streams (or general waste stream types) that will be treated, all possible treatment goals with respect to the chemical and physical characteristics of the waste, and specify what waste treatment residual characterization will be performed to verify that the goal has been accomplished.** **DOE/SNL's Response:** "New Section B.1.4 includes a discussion of the waste streams to be treated and the treatment goals. New Section B.3.3 includes a discussion of waste characterization for treatment-derived wastes. Treatment goals are also discussed in Section 8.0 of the Unit-specific modules for each Unit where DOE/Sandia perform treatment." **Response Evaluation** SNL's response is partially adequate. Sections are added to the WAP to address treated wastes. However, the WAP continues to fail to commit to comply with the 40 CFR § 268.7(b) requirement to test all treated wastes to determine the LDR status of the waste. SNL must either revise the WAP to commit to characterizing every batch of treated waste, or provide criteria for not doing so (e.g., statistical procedures for demonstrating treatment effectiveness). If the treatment is not intended to attain a LDR standard and the wastes will be further treated off-site SNL will be required to submit the notice and certification requirements of § 268.7(b)(5) and § 268.7(b)(4)(iv). To ensure that the regulatory requirements are followed, NMED must know specifically which treatment processes are intended to attain a LDR standard. WAP Section B.1.4 states that waste characterization is performed to determine whether treated wastes and treatment residuals "meet treatment standards", and Section B.3.2 states that wastes to be treated will be characterized to determine "subsequent compliance with treatment standards for land disposal." However Section B.3.3 and its related Sections only commit to determining treatment effectiveness "as appropriate" and only commit to analyzing for UHCs those wastes treated by stabilization and thermal deactivation. Section 8.0 for the RMWMF does generally suggest that treatment is meant to meet LDR treatment standards but none of the specific waste descriptions specify whether LDR standard attainment is a treatment goal. Sections B.1.4.1 and B.1.4.2 suggest that the processes of chemical and thermal deactivation are meant solely to de-characterize a waste. SNL must revise the WAP to clarify whether these processes are ever meant to attain LDR treatment standards and under what circumstances that would be the case.	Each of the treatment methods used at SNL/NM Units could be used to meet one or more of the treatment standards applicable to a waste. As noted in the response to Comment 27, meeting treatment standards in 40 CFR 268 Subpart D is only one of the goals of treatment performed at each SNL/NM Unit. In general, DOE/Sandia treat wastes to render them safer and/or more amenable to further management on site or off site. The methods for determining effectiveness are tailored to each treatment method and its goals. Characterization of treated wastes is described in revised Section B.2.5 (formerly B.3.3). In each case, characterization is consistent with the treatment methods and treatment goals. The characterization methods and rationale are summarized in new Table B-3. Wastes that will not undergo further treatment on site are characterized in accordance with the applicable requirements of 40 CFR 268.7(b), as discussed in revised Section B.2.5 (formerly B.3.3). In each case, the characterization will determine whether the treated wastes meet the applicable treatment standard(s). Revised Section B.6.2.2 (formerly B.5.2.2) also includes a general discussion of characterization of treated wastes for compliance with treatment standards. The sentence quoted in the last part of this comment has been deleted. Because of the wide variety of wastes generated by operations at SNL/NM, it is not feasible to specify treatment goals for future wastes. Each waste intended for treatment at one of the SNL/NM Units is characterized as described in revised Section B.2.4 (formerly B.3.2). This characterization includes consideration of applicable treatment standards and treatment methods that are available at SNL/NM Units. Unit personnel decide whether to treat the waste on site and which treatment goals to use based on the characterization information. These waste management activities (treatment, treatment effectiveness, and characterization before and after treatment) are documented in the operating record as noted in Section 9.0 of the General Part B.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	NMED assumes that the process of amalgamation is meant to both de-characterize and meet the process specific LDR treatment standard for elemental mercury contaminated with radioactive materials. SNL must revise the WAP to state this fact if it is accurate. NMED assumes that the processes of macroencapsulation and stabilization are meant to both de-characterize a waste and attain that waste's applicable LDR treatment standard due to their ability to immobilize constituents. SNL must revise the WAP or Sections 8 of the unit specific chapters to recognize that this may only be true for wastes characteristically toxic for metals and these processes will not attain LDR treatment standards for any waste with a "total waste standard" as described at 268.40(a)(1). Section 8.0 for the RMWMF states, "Waste treatment may generate secondary waste streams (treatment residues)." The permit application must be revised to recognize that treatment processes, including thermal deactivation, always generates a new waste that must undergo a complete waste characterization including a LDR status determination. Section B.3.1.3.2 inappropriately states that treated wastes will be "reevaluated" to verify that applicable treatment standards have been met. SNL's uses term "reevaluation" in association with routinely generated wastes that require periodic evaluation to ensure that they have not changed. The regulations at 40 CFR § 268.7(b) require that every batch of treated waste be tested to determine the waste's LDR status (unless the waste has a technology-based standard). NMED considers the use of the term "reevaluation" inappropriate with regards to treated wastes because NMED considers each batch of treated waste a newly generated waste requiring complete characterization, particularly a LDR status determination. SNL must either revise the WAP to remove this particular reevaluation criterion and commit to characterizing every batch of treatment residue, or provide criteria for not doing so (e.g., statistical procedures for demonstrating treatment effectiveness). Section B.5.2.2 is incorrect where it states, "If a waste is known to meet applicable LDR treatment standards for certain constituents before treatment, testing the newly-generated waste (treatment residue) to certify LDR compliance for those constituents is not necessary." Treatment processes that concentrate constituents such as the thermal deactivation process at the TTF that concentrates silver may cause a waste constituent that meets standards before treatment to exceed standards after treatment.	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
33	**NOD Comment 41(c), The Site-Wide WAP must address the requirement that treatment facilities specify in a WAP the waste testing frequency and whether the analytical method is performed on treatment residue or on an extract of the residue. (40 CFR Section 268.7 (b))** **DOE/SNL's Response:** "Revised Section B.3.1.3 includes a discussion of frequencies for testing treated wastes. Revised Section B.5.2.2 (formerly Section B.5.3) discusses whether the analysis is performed on treatment residue or on an extract of the residue." **Response Evaluation** SNL's response is partially adequate. Section B.3.1.3 does not sufficiently specify a treated waste testing frequency. See response evaluation at Comment 32. Section B.5.2.2 appropriately discusses whether the analysis is performed on treatment residue or on an extract of the residue.	Please see response to Comment 32. Revised Section B.2.5 (formerly Section B.3.3) discusses characterizing treated wastes, including determination of whether the wastes have met one or more applicable treatment standards. Criteria, parameters, and rationale for characterizing treated wastes are also summarized in new Table B-3. Verification and reevaluation are discussed in revised Section B.2.6 (formerly B.3.1.3). DOE/Sandia have revised the section to note that these do not apply to treated wastes.
34	**NOD Comment 41(e), The Site-Wide WAP must address the requirement specifying particular treatment standards for wastes carrying both listed and characteristic waste codes. (40 CFR Section 268.9 (b))** **DOE/SNL's Response:** "Please see response to Comment 30(s)" **Response Evaluation** SNL's response is inadequate. SNL's response to Comment 30(s) did not address the issue. See NMED evaluation of that response at Comment 19.	Please see response to Comment 19.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
35	**NOD Comment 41(f), The Site-Wide WAP must address the requirement addressing treatment standards in general including the requirement that mixtures of wastes attain the lowest applicable treatment standard. (40 CFR Section 268.40)** **DOE/SNL's Response:** "Revised Section B.3.1 includes a discussion of the limited instances in which DOE/Sandia mix RCRA-regulated and non-RCRA-regulated wastes. The resulting mixture is characterized as needed to obtain sufficient information for on-site management. As noted in Revised Section B.5.2.1, DOE/Sandia assume that all RCRA-regulated wastes managed at SNL/NM Units are restricted from land disposal (i.e., they do not meet the applicable treatment standards) except as described therein." **Response Evaluation** SNL's response is inadequate. NMED's concern is SNL's mixing of wastes and that the process might not abide by the 40 CFR § 268.40(c) requirement that "when waste with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern." The Section B.3.1 discussion of combining commercial chemical products illustrates SNL's intent to combine wastes with potentially differing treatment standards. The WAP must be altered to recognize the importance of identifying all constituents of concern for mixed wastes (*not* hazardous/radioactive mixed waste), identifying the appropriate treatment standard for those constituents, and then associating the lowest applicable treatment standard to that waste. Whether this process is sufficient information for on-site management is irrelevant. The final sentence in the response is also irrelevant in that, beyond assuming that all RCRA-regulated wastes managed at SNL/NM Units are restricted from land disposal, SNL must actually identify the applicable treatment standard associated with different waste codes because, for example, if a waste having only concentration-based treatment standards is mixed with a waste having "combustion" as the specified method, the entire mixture must be combusted prior to land disposal.	Please see response to Comment 26 regarding characterization of mixed and blended wastes. DOE/Sandia's commitment to meeting the requirements of 40 CFR 268.40(c) continues to be clearly described in revised Section B.6.2.2 (formerly B.5.2.2) for wastes treated at SNL/NM Units.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
36	**NOD Comment 47(a), Revise the WAP to address the storage prohibitions at 40 CFR Section 268.50. DOE/SNL must identify in the Site-Wide WAP those wastes it will not characterize for LDR standards in compliance with the Federal Facility Compliance Order mandated Site Treatment Plan (STP). Furthermore, if DOE/SNL does intend to store hazardous waste not listed in the STP for longer than one year, the Site-Wide WAP must recognize the waste characterization requirement to show that the wastes have attained LDR treatment standards.** **DOE/SNL's Response:** "RCRA-regulated wastes that do not meet the treatment standards are subject to the prohibition on storage for longer than one year in 20 NMAC 4.1.800/40 CFR 268.50(a). Wastes that are subject to the Federal Facilities Compliance Order between DOE, Sandia, and NMED (October 1995) are exempt from the storage prohibition, as noted in Section B.5.2.1 in the revised WAP (formerly Section B.5.3). Information regarding whether a waste is subject to the FFCO is part of the operating record for the waste and is maintained in the same manner as data for all other wastes, as discussed in Section 9.0 (formerly Appendix H) of the General Part B. DOE/Sandia note that wastes subject to the FFCO are <u>not</u> exempt from characterization requirements. **<u>Response Evaluation</u>** The response regarding compliance with the 40 CFR § 268.50 storage time limitation for prohibited wastes and FFCO/STP related issues is partially adequate. SNL included language in the WAP recognizing the regulatory storage time limitation, but fails to describe how stored wastes will be properly characterized to determine LDR status. See additional comment on the subject at Comment 40.	Revised Section B.6.2.1 (formerly B.5.2.1) addresses LDRs for wastes that are stored in SNL/NM Units. For the purpose of conducting waste management activities that require a permit, DOE/Sandia assume that all wastes fail the treatment standards unless proven otherwise through characterization. Wastes that have been stored on site for more than one year are assumed to be subject to the Federal Facilities Compliance Order (FFCO) between NMED, DOE, and Sandia unless proven otherwise through characterization. Thus the LDR status of all wastes stored at SNL/NM Units is established in a manner that is fully compliant with the requirements of 40 CFR Parts 264, 265, 268, and 270. Wastes that have been stored on site for more than one year are assumed to be subject to the FFCO unless proven otherwise through characterization. Wastes that are subject to the FFCO are characterized according to the processes described in the revised WAP.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
37	**NOD Comment 47(b), Revise the WAP to address the characteristic waste analysis requirements at 40 CFR Section 268.9. DOE/SNL must specify in the Site-Wide WAP how generators will determine underlying hazardous constituents (UHC)s in compliance with 40 CFR Section 268.9 (a).** **DOE/SNL's Response:** "DOE/Sandia will characterize treatment residues that are newly generated as a result of treatment of RCRA-regulated wastes at the TTF, RMWMF, or AHCF in accordance with 20 NMAC 4.1.800/40 CFR 268.9(a). Text addressing this issue has been incorporated into Section B.5.2.3 (formerly Section B.5.3) of the revised WAP." **Response Evaluation** The response regarding compliance with the 40 CFR § 268.9 requirement that generators determine underlying hazardous constituents (**UHC**)s is partially adequate because the WAP has been revised to address the issue for newly generated wastes as a result of treatment, but again the WAP fails to describe how stored wastes that were generated outside a hazardous waste management unit will be properly characterized to determine LDR status as required by § 264.13. See additional comment on the subject at Comment 40.	Please see response to Comments 26 and 36 regarding applicability of LDRs to wastes stored in on-site Units. Characterization of treated wastes is described in revised Section B.2.5 (formerly B.3.3).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
38	**NOD Comment 47(c), Revise the WAP to address the testing frequency of treated waste at 40 CFR Section 268.7(b).** **DOE/SNL's Response:** "Section B.3.1.3 has been revised to address frequencies for testing treated waste." **Response Evaluation** The response regarding the testing frequency of treated waste is partially adequate because Section B.3.1.3.2 appropriately commits to reevaluating the initial characterization of treated wastes (presumably after every treatment process) to verify that applicable treatment standards have been met. However, the term "testing" is not used in the WAP, and instead has been inappropriately interpreted by SNL to allow characterized via acceptable knowledge (AK) instead of actual laboratory analysis. The regulations at 40 CFR § 268.7(b) require treated wastes undergo laboratory analysis through the clause "Treatment facilities must test their wastes …" The definition of the term "test" is clarified at § 268.7(a), which requires generators to determine the LDR status of wastes "in either of two ways: testing the waste or using knowledge of the waste." The term "test" is further discussed in the regulation in terms of specific laboratory analytical methods. NMED recognizes that it is only through analysis that it can it be determined whether the concentration of constituents of concern or underlying hazardous constituents attain applicable stringent treatment standards SNL must revise WAP Section B.3.3 to recognize this requirement to characterize treated wastes via testing (i.e., sampling and laboratory analysis). Section B.3.1.3.2 may be altered to propose a procedure for evaluating testing data (e.g., statistically) to determining whether the reevaluation process of treated waste may at some point be performed via AK.	Please see response to Comment 27 regarding compliance with the requirements of 40 CFR 268.7(b) and the applicability of analytical testing to various treatment methods and treated wastes. Characterization of treated wastes is discussed in revised Section B.2.5 (formerly B.3.3) and summarized in new Table B-3. Characterization requirements for treated wastes with respect to treatment standards is discussed in revised Section B.6.2.2 (formerly B.5.2.2).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
39	**NOD Comment 47 (addendum) The WAP remains significantly deficient with regard to its description of waste characterization to determine LDR status. Specifically, the WAP fails to commit to characterizing stored wastes for their LDR status and is inconsistent with regard to its LDR commitments for other categories of wastes (e.g., treated wastes, newly generated wastes and waste received from off-site) SNL appears to have made a concerted effort to remove related commitments that were included in the previous application. SNL's explanation for the omission of these procedures is that "SNL/DOE do not perform disposal of RCRA-regulated waste under the terms of the existing or requested permit. Therefore, this WAP does not address waste characterization necessary for disposal. [Introductory Section, 2nd Paragraph] This explanation is itself inconsistent in that the LDR status characterization of treatment residuals is performed to ensure proper disposal of the waste.** The section of the WAP devoted to the LDRs, Section B.5.2, addresses LDR characterization procedures for treated waste and waste received from off-site but fails to address similar procedures for stored wastes. The Section does however recognize that stored wastes have storage time limitations based on their LDR status; a significant factor in NMED's contention that WAPs must address the LDR status of stored wastes as will be discussed below. Section B.3 of the WAP also excludes procedures for determining the LDR status of stored wastes while discussing the process initial waste generators and unit personnel utilize for determining the LDR status of wastes "to be treated." The requirement that a WAP specify how all managed wastes, including stored wastes, will be characterized for related LDR status is reflected in numerous documents, including; NM's Hazard Waste Management Regulations, EPA's WAP guidance (EPA 1994), and SNL's current RCRA operating permit. The regulatory requirement to characterize stored hazardous waste for its LDR status is at 40 CFR § 270.14(b)(2). This regulation requires that a permit applicant provide the chemical and physical analysis of the hazardous waste to be handled at the facility, including at a minimum the information that must be known to treat, store, or dispose of the waste in accordance with the regulations. NM's regulation at § 264.13(a)(1) requires that the information necessary to treat, store, or dispose of a waste must be obtained "before" arrival at a unit. And the regulation at § 264.13(b) requires that the procedures used to obtain the waste characterization information be described in a WAP. The regulation at § 264.13(b)(6) specifically identifies the LDR characterization requirements at § 268.7 as a potential requirement of the WAP.	DOE/Sandia note the Comprehensive Part B Permit Request addresses waste management activities that require a permit. It does not address waste management activities that do not require a permit, even though those activities may be conducted at SNL/NM Units, unless such activities affect DOE/Sandia's ability to maintain compliance with permit conditions and regulatory requirements applicable to permitted activities and permitted Units. With respect to waste management activities requiring a permit, the WAP discusses the waste characterization objectives and processes for obtaining sufficient information to fully characterize the wastes and determine management requirements to maintain compliance. Knowledge of individual treatment standards is not needed to store these wastes in accordance with the regulations, because DOE/Sandia assume that all wastes fail the treatment standards unless proven otherwise through characterization. Thus the LDR status of all wastes stored at the SNL/NM Units in this Comprehensive Part B Permit Request is established in a manner that is fully compliant with the requirements of 40 CFR Parts 264, 265, 268, and 270, including 40 CFR 270.14(b)(12). DOE/Sandia note that information regarding compliance with the storage time limits for individual wastes is included in the Unit operating record, as described in Section 9.0 of the General Part B. Additional information regarding applicable treatment standards is needed to conduct treatment activities requiring a permit at SNL/NM Units, therefore treatment standards and the LDR status are determined as described in the WAP during characterization of wastes that will be treated or have been treated at SNL.NM Units. The WAP meets the requirements of 40 CFR 264.13(a) by describing procedures for providing complete waste characterization information needed to conduct the activities requiring a permit at SNL/NM Units. The WAP also meets the requirements of 40 CFR 264.13(b)(6) by including requirements of 40 CFR 268.7 that are applicable to the activities subject to the WAP. Please see response to Comment 26 for a discussion on characterization of mixed and blended wastes and compliance with the regulatory prohibition on dilution as a substitute for treatment. DOE/Sandia used EPA's "*Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes: A Guidance Manual*", OSWER 9938.4-03 (EPA, 1994) in developing the WAP. The manual blends regulatory requirements and EPA's recommendations, and it describes a continuum of waste management activities and the overall characterization needed for all of them. The manual also does not distinguish between

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	A waste's LDR status is particularly relevant to the proper storage of that waste, specifically the storage time limitations of prohibited wastes of 40 CFR § 268.50 and the hazardous waste dilution prohibitions of § 268.3. The regulations at § 268.50(a)(2) prohibit an owner/operator of a hazardous waste storage facility from storing hazardous wastes restricted from land disposal for greater than one year except under certain accumulation circumstances. The regulations at 40 CFR § 268.3 states that "dilution as a substitute for adequate treatment is prohibited." The LDR requirements attach to a hazardous waste at its point of generation as specified at § 268.9(c). EPA's initial pronouncement on LDR/POG came on November 7, 1986. [51 *FR* 40620] EPA stated, "The agency is requiring that applicable Part 268 Subpart D treatment standards for a restricted waste must be determined at the point of generation." This was reaffirmed on July 8, 1987. [52 *FR* 25766] One of the reasons for establishing a waste's LDR status at the POG and maintaining that status through subsequent management, including storage, is to ensure that wastes are not diluted. In addition to the regulations, NMED relies on the U.S. EPA's waste characterization guidance, EPA 1994, to establish the standard for LDR characterization requirements in storage permits. EPA 1994, illustrates the importance of making an appropriate LDR status determination by devoting a large portion of the introduction to the subject of LDRs. The Introduction, 7th paragraph, states, "The LDR regulations dramatically increased the importance of proper waste analysis to ensure that all treatment standards are met prior to land disposal. For example, if you store hazardous waste, you must test the waste, or use knowledge of the waste, to determine if the waste is restricted from land disposal. In addition, you must notify any subsequent facilities that treat, store, or dispose of the waste of its LDR status." These points are reiterated and reinforced at Sections 1.3, 3rd paragraph, 2nd bullet and 2.1.2, 3rd paragraph, and at Table 2-1. SNL's current operating Permit, a permit strictly for storage of hazardous wastes without a treatment component, both requires and describes how stored wastes are characterized to ensure proper disposal of the wastes and describes how these wastes are characterized for their LDR status. The renewed Permit must contain the same or similar requirements and descriptions. The WAP portion of the Permit, Section 2.2.1.1, Paragraph 4 states, "The characteristics of the waste, as determined by KOP (knowledge of process), are used to determine the proper packaging, storage, segregation, and disposal of the laboratory wastes. In particular, …the hazardous characteristics and composition of the waste are used to ensure that the waste is packaged in a compatible manner and is disposed of properly, including waste restricted from land disposal." WAP recognition of the importance of proper characterization for waste disposal	activities that require a permit and those that can be conducted without a permit. For all of these reasons, many of the characterization activities described in the manual are not applicable to the activities conducted under this Comprehensive Part B Permit Request, and therefore are not included in this WAP. The waste analysis plan in Permit NM5890110518-1 includes waste characterization activities that are not required for performing waste management activities that require a permit. Other sections of the permit also include information describing activities that do not require a permit. DOE/Sandia have gained experience operating permitted facilities and have learned that unnecessary information that is included in a permit can inhibit effective and compliant operations. EPA has noted this same point (e.g., recommending that all portions of a permit "be reviewed for applicability, importance, and clarity" in OSWER Policy Directive No. 9523.00-15 dated March 30, 1988, FAXBACK 13155). Since many parts of the permit application are incorporated into the permit, DOE/Sandia have chosen to include information that provides full compliance and effective operations for those activities requiring a permit. Module IV (the HSWA module) in Permit NM5890110518-1 addresses corrective action for solid waste management units. Permit Condition IV.B.6 discusses prioritization of operable units for assessment and remediation. Permit Condition IV.A.6 discusses restrictions on land disposal and requirements for compliance with 40 CFR 268. Since corrective action frequently involves placement of remediation wastes on the land, LDRs are appropriate in such a permit. DOE/Sandia continue to meet the applicable requirements of 40 CFR 268.7 with respect to wastes generated and managed during corrective action activities that are conducted under Module IV. The revised WAP fully addresses all waste characterization requirements applicable to permitted activities conducted at SNL/NM Units, including requirements addressed in this comment: • Overall waste characterization is described in revised Section B.2.1 (formerly part of B.3.1). As noted in revised Section B.2.1.2, Unit personnel accumulate sufficient information to determine whether a solid waste is a RCRA-regulated waste, assign all applicable waste codes, and determine management requirements. • The physical form of the waste is part of the characterization information. • LDR status for wastes managed at SNL/NM Units is established as described in revised Section B.6.2 (formerly B.5.2).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	is reiterated at the following Sections; 2.2, 2.2.1.2 paragraph 4, and 2.2.3. The HSWA Module of the Permit, Section B.6, requires, among other land ban requirements, compliance with all statutory and regulatory requirements restricting or prohibiting the disposal of hazard waste in or on the land, and specifically requires compliance with 40 CFR § 268.7 An earlier version of SNL's permit renewal application includes both commitments to characterize wastes to ensure proper disposal and to characterize stored wastes for their LDR status. SNL's February 2002 General Part B, Revision 1.0, Appendix B (WAP), Section B.2 states, "Waste analysis parameters will be selected to ensure that the characterization documentation will contain information necessary to properly treat, store, or dispose of waste in accordance with RCRA general facility standards and LDR requirements." Section B.5.3 states, "In accordance with LDR requirements, waste to be shipped off site may need to be analyzed to determine whether if meet the applicable LDR treatment standards …". NMED stresses the importance of SNL's inclusion of LDR waste characterization commitments for stored wastes in the WAP because a recent inspection of SNL raised significant concerns whether these wastes are being properly characterized. SNL must incorporate and delineate appropriate LDR characterization procedures in the WAP, to improve SNL's waste characterization regulatory compliance. NMED requires that SNL revise the WAP to reflect the following requirements. That all wastes managed at permitted units, including stored wastes, be appropriately characterized for their LDR status, that the process be performed at the waste's point of generation, that if that point of generation (POG) is not at a hazardous waste management unit then unit personnel will ensure the accuracy of the LDR status determination prior to its arrival at the unit, and that all documentation related to the LDR status determination be kept in the unit's operating record. The WAP must thoroughly specify how SNL will perform a proper LDR status determination and commit to ensuring that wastes stored under a permit are characterized by these procedures. At a minimum the WAP must address the following; • Ensuring that waste generators have assigned all of the appropriate wastes codes to the waste. The important implication of this for LDR compliance is that if the waste is both a listed and characteristic waste, 40 CFR § 268.9(b) requires the determination of the treatment standard for the listed waste and then doing one of two things: 1. If the treatment standard for the listed waste specifically addresses the characteristic exhibited by the waste, only the listed	• Treatment standards and LDR status are determined for wastes that are to be treated or have been treated if compliance with the treatment standards is a treatment goal. Characterization for these wastes is discussed in revised Sections B.2.4 and B.2.5 (formerly B.3.2 and B.3.3). The LDR status for wastes to be treated is determined at the point of generation. • Waste characterization criteria, parameters, and rationale are summarized in revised Table B-2 and new Table B-3. UHCs are included where applicable in the parameters in Table B-3. • Most or all of the references to "RCRA-regulated" characteristics and constituents have been revised to "hazardous waste" characteristics and constituents in response to Comment 41. UHCs are included as applicable in characterization of wastes to be treated or wastes that have been treated and will not undergo further treatment on site. • Characterization of mixed and blended wastes is described in revised Section B.2.3 (formerly part of B.3.1). Characterization of mixed and blended waste resulting from treatment is described in revised Section B.2.5.2 (formerly B.3.3.2), and the LDR requirements for treated wastes are discussed in revised Section B.6.2.2 (formerly B.5.2.2). • The operating record includes notices and certifications required in 40 CFR 264.73(b) (11), (12), (15), and (16), as described in revised Section 9.0 of the General Part B. • Conditionally exempt small quantity generators meeting the requirements of 40 CFR 261.5 are exempt from the requirements of 40 CFR 268. DOE/Sandia characterize wastes from these off-site sources using the process described in revised Sections B.2.0 through B.2.2 (formerly parts of B.3.0 and B.3.1). Wastes from small quantity generators are characterized according to the procedures described in revised Section B.5 (formerly B.4) for wastes from off-site large quantity generators.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	waste code (and treatment standard) applies; or 2. If the treatment standard for the listed waste does not address the characteristic exhibited by the waste, both the listed and characteristic waste code (and treatment standard) applies. • Ensure that waste generators have appropriately determined if the waste falls into any "subcategories" established under the LDR program and specified at 40 CFR § 268.40. For example, D008 lead-containing waste can fall into one of four subcategories: 1) radioactive high-level waste generated during the reprocessing of fuel rods, 2) radioactive lead solids, 3) lead-acid batteries, 4) all other waste that exhibit the toxicity characteristic for lead. • Ensure that waste generators have appropriately classified the waste according to its treatability group (i.e., wastewater or nonwastewater). • Ensure that waste generators have appropriately identified the waste's treatment standard. A practical implication of this procedure is that if a specific treatment method is identified, the method attaches to the waste at the point of generation and continues in force until that waste is treated by that method. • Ensure that waste generators have appropriately identified the underlying hazardous constituents (UHC) of some characteristic hazardous wastes at the waste's point of generation (see the definition of UHC at 40 CFR § 268.2). The WAP does address the following characterization procedures for determining underlying hazardous constituents (UHCs), albeit ostensibly only for treated wastes: • Section B.2 describes how initial waste generators and unit personnel work together to ensure sufficient information to properly treat and/or store wastes in accordance with LDR standards. The WAP fails to further address what constitutes sufficient information to properly store waste in accordance with LDR standards. • Section B.2.2 commits to providing the criteria and rationale for selecting waste analysis parameters necessary to properly store and/or treat waste in accordance with 40 CFR Part 268. The WAP fails to entirely accomplish this as is described below. • Section B.3 describes a process where initial waste generators work cooperatively with unit personnel to complete waste characterization documentation necessary for "identification of underlying hazardous constituents (UHCs) and LDR compliance status for waste that are to	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	be treated at SNL/NM Units." This language demonstrates SNL intention not to identify the UHCs in stored wastes. • Section B.3.1 paragraph 2 describes how initial waste generators complete a disposal request form (DR) that contains the information necessary for identification of the concentration and proportion of "RCRA-regulated constituents." SNL inappropriately do not identify UHCs as RCRA-regulated constituents. • Section B.3.1.1 addresses acceptable knowledge (AK) as a waste characterization process and includes considerable information sources that are useful for identifying UHCs. • Section B.3.1.3.2 appropriately addresses the reevaluation of treated wastes to verify that applicable treatment standards (presumably for UHCs) have been met. • Section B.3.2.2 appropriately commits to characterizing wastes before treatment "in order to subsequently determine whether a waste has been properly treated and meet LDR treatment stands, including standards for UHCs that are reasonably expected to be present." • Section B.3.3 appropriately commits to analyzing treated wastes for any RCRA-regulated constituents (presumably UHCs) added during the treatment process. • Section B.3.3.1 provides the only WAP example of a specific UHC expected to be present in the residue of a treated waste and that will require further treatment prior to land disposal. The Section suggests elemental silver will remain in the ash when SASN is treated at the TTF. The Section (as well as elsewhere) commits to characterizing treatment residuals "as need to meet the requirements of the off-site TSDF." • Section B.4 describes how SNL expects LDR notifications from off-site large quantity generators. • Section B.5.2 provides the general commitment to comply with LDR requirements for wastes stored or treated at the units "through compliant management of wastes subject to LDR storage prohibitions, and through characterization of treated waste (i.e., RCRA-regulated wastes treated at SNL/NM Units) for LDR compliance, and processing of the applicable LDR certification and notifications for such treated wastes." The WAP must be revised to include the following characterization or documentation procedures associated with determining UHCs:	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	• Section B.2.1 must address the parameters/methods to be used to determine the presence and concentration of the inorganic UHC listed at 40 CFR § 268.48. These parameters and methodologies must also be provided it Table B-2. • Recognize the requirement to perform a LDR status determination of mixed or blended wastes that create a new waste at the units. • The regulation at 40 CFR § 264.73(b)(16) requires an on-site storage facility maintain in its operating record the information contained in the notice, and certification and demonstration if applicable, required of generators or the owner or operator under § 268.7 and § 268.9. The regulation at § 268.7(a)(2) references notifications and certifications for waste or contaminated soil that does not meet its LDR treatment standard. The regulation at § 268.7(a)(3) references notification and certification documents associated with waste or contaminated soil that meets its standard. • Section B.4 must address how wastes from small quantity and small quantity/conditionally exempt off-site generators will be characterized for LDRs.	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
40	**NOD Comment 49, the application states that mixed wastes will be managed at the Radioactive and Mixed Waste Management Facility and the Auxiliary Hot Cell Facility. If this is the true, the application must categorically state that mixed wastes "will not" be managed at any other permitted location or unit.** **DOE/SNL's Response:** "Radionuclides are not regulated under NMHWA or the regulations in 20 NMAC 4.1 that govern the activities that are described in this application. Therefore, DOE/Sandia do not believe it is necessary or appropriate to specify whether radionuclides are present or absent in RCRA-regulated waste managed at any of the Units. The presence of radionuclides is indicated where it is appropriate with respect to compliance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart CC (described in Section 1.2 of the General Part B and each Unit-specific module) and Section B.5 of the WAP (Appendix B). **Response Evaluation** SNL's response is both inadequate and inconsistent. SNL's response states that radionuclides are not regulated by NMED, yet the last sentence references applicable NM regulations that specifically address radionuclides. Additional applicable NM regulations not mentioned in SNL's response include 40 CFR § 268.40 which specifies LDR treatment standards for radionuclide contaminated elemental mercury, related hydraulic oil (D009), and lead (D008), and §§ 268.30(b), 268.38(b), and 268.39(d) which all prohibit the land disposal of specific mixed wastes. NM's regulations at § 268.40 also identify a treatment standard based on the level of radioactivity in a mixed waste, specifically high level mixed waste carrying EPA Hazardous Waste numbers D002, D004, D005, D006, D006, D007, D008, D009, D010, and D011. NMED does not believe SNL is managing such wastes but cannot be certain due to SNL's reluctance to both identify which wastes are classified as mixed and their level of radioactivity. In addition to the applicable regulatory requirements referenced above, NMED's knowledge of radionuclide characterization information is very important to hazardous waste regulation for practical reasons. First, NMED must know which units and containers manage radioactive mixed wastes during inspections for personnel safety reasons. Second, characterization of the radioactive components of radioactive mixed waste may be necessary to understand the potential interactions of radioactive materials with organic materials present in the radioactive mixed waste. Radioactive materials in radioactive mixed waste can affect the chemical behavior of organic material in the waste through radiolysis reactions or because of increased temperatures caused by radioactive decay. NMED recognizes that "source, special nuclear, and byproduct material" is	DOE/Sandia note that the presence of radionuclides in the RCRA-regulated wastes managed at each Unit does not generally affect the waste management and unit operational requirements specified in 40 CFR 264 (i.e., the requirements for hazardous component of mixed waste are the same as the requirements for hazardous waste). In these instances, specifying in the permit request whether radionuclides are present is not necessary or useful. Regarding the requirements in 40 CFR 268.40 cited in the comment, and the requirements of 268.30(b), 268.38(b), and 268.39(d): • These requirements are applicable to management of off-site wastes, and to treatment and land disposal of the hazardous component of RCRA-regulated wastes; they would therefore be applicable to off-site storage, treatment and land disposal operations at SNL/NM. • Treatment standards applicable to RCRA-regulated wastes received from off-site generators for storage or treatment are addressed in revised Section B.6.2.3 (formerly B.5.2.3). • The treatment standards applicable to all the RCRA-regulated wastes that are treated at SNL/NM Units are addressed in revised Section B.6.2.2 (formerly B.5.2.2); the discussion is applicable to both hazardous wastes and the hazardous component of mixed wastes. • DOE/Sandia do not perform land disposal at SNL/NM. • The prohibition against extended storage of restricted wastes (i.e., wastes that do not meet the treatment standards in 40 CFR 268 Subpart D) is addressed in revised Section B.6.2.1 (formerly B.5.2.1). Individual treatment standards are not necessary for compliance with the requirements in 40 CFR Parts 264, 265, 268 and 270 that are applicable to the on-site storage activities conducted at SNL/NM. DOE/Sandia characterize all wastes managed at the SNL/NM Units to the extent necessary for compliance with all regulatory requirements applicable to the waste management activities that require a permit (applicable requirements in 40 CFR Parts 264, 265, 268, and 270). The chemical characteristics of radionuclides are considered during waste characterization, unless the radionuclides are source, special nuclear, or byproduct material as defined in the AEA, because these radionuclides are not solid waste in accordance with 40 CFR 261.4(a)(4). The characterization of all RCRA-regulated wastes is documented in the operating record as described in Section 9.0 of the General Part B. The operating record is available for NMED review in accordance with the requirements of 40 CFR 264.74(a).

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	exempt from the definition of solid waste under RCRA and the NMHWA. RCRA § 1003(27), 42 U.S.C. § 6903(27); NMSA 1978, § 74-4-3.O. However, as explained above, NMED can and must require the identification of radionuclides that are source, special nuclear, or byproduct material to the extent necessary to properly regulate solid and hazardous wastes. NMED can also regulate radionuclides that are not source, special nuclear, or byproduct material and are solid wastes, such as accelerator produced radioactive wastes. The Atomic Energy Act of 1954 ("AEA"), 42 U.S.C. §§ 2011 to 2297g-4, regulates three different classes of radioactive material: source material, special nuclear material, and byproduct material. *United States v. Kentucky*, 252 F.3d 816, 821 (6th Cir. 2001); *see* 42 U.S.C. §§ 2014(e), (z), and (aa). The AEA does not regulate naturally occurring or accelerator produced radioactive material ("NARM"). *Gassie v. SMH Swiss Corp.*, 1999 WL 539489 at *2 (E.D. La. 1999) DOE has long recognized this distinction. In its 1996 Integrated Data Base Report, DOE stated: > NARM wastes are currently not regulated by any federal agency. Responsibility for regulating the disposal of NARM is not addressed in the [AEA]. Regulation of NARM disposal currently rests with the states as part of their authority for ensuring the protection of public health and safety. DOE, *Integrated Data Base Report – 1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics* at 7-1 (Revision 13 Dec. 1997). See also DOE M 435.1-1, Radioactive Waste Management Manual, p. IV-1 and DOE G 435.1-1, Implementation Guide, p. IV-11. Thus, NMED is not preempted from regulating such material. SNL has the burden of showing that it is entitled to the exemption for source, special nuclear, or byproduct material. SNL has not provided any information to demonstrate that the origin of the radionuclide contaminants in waste at the facility is strictly source, special nuclear, or byproduct material. To claim the exemption, SNL must specifically identify which of its wastes contain NARM and which contain source material, special nuclear material, and byproduct material. SNL must commit in its application to identifying the radionuclides and their concentrations in mixed wastes to the extent that such identification is incidental to regulation of solid and hazardous waste, and to identifying which containers, tanks and buildings manage radioactive mixed wastes so that NMED can effectively enforce the above regulations and safely inspect hazardous waste operations.	Regarding the presence of radionuclides in wastes at SNL/NM, DOE/Sandia note that radionuclides are or may be present in wastes managed in all areas at the HWMF, the existing RMWMF/future CWMF, the AHCF, and the MSB. Radionuclides are not present in the wastes managed at the TTF. Therefore, DOE/Sandia recommend that NMED personnel be prepared for the presence of radionuclides at all Units except the TTF. DOE/Sandia note that all visitors to the waste management Units (including NMED personnel) are provided information about the hazards at each Unit, through an initial briefing and/or a short informal briefing at the beginning of the visit. In cases where additional personal protective equipment (PPE) or personal monitors are needed because of particular hazards (e.g., elevated radiation dose) associated with certain wastes that are present, DOE/Sandia have made PPE and monitors available to visitors, including NMED personnel.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	The following are additional comments on the revised Permit Application, Revision 2.0, dated April 2003.	
41	**"RCRA-regulated"** WAP Section B.3.1, 2nd Paragraph, states, "Initial generator-supplied waste description information used to characterize waste includes … waste characteristics and components (e.g., ignitability, corrosivity, chemicals or RCRA-regulated constituents contained in the waste as well as their concentrations and proportions…)." The term "RCRA-regulated" is used consistently throughout the WAP in place of the term "hazardous". NMED believes that SNL's use of the term "RCRA-regulated waste" in the WAP is an effort to emphasize that NMED only regulates the hazardous portion of mixed wastes. It is not clear whether the term refers to a formerly hazardous waste that has been de-characterized yet must still undergo treatment to meet LDR treatment standards. It is also not clear whether the term refers to solid wastes that are regulated by RCRA. It is also confusing since RCRA regulated constituents could be construed to include regulated substances in underground storage tanks. NMED is also concerned that the phrase "RCRA-regulated constituents" may be too limiting, causing the WAP to be deficient, and causing wastes to be mischaracterized. NMED is also concerned about the enforceability of a WAP that uses an undefined term in place of a term that is defined (e.g., hazardous waste, hazardous waste constituent, hazardous waste management unit (40 CFR § 260.10)). The WAP must be revised to use terms defined in RCRA, HWA, federal or state regulations. If SNL believes it is necessary to use terms not defined in current law, SNL must include a precise and clear definition of the term. WAP Section B.2.1 identifies RCRA-regulated metals, volatile organic compounds, and semi volatile organic compounds as parameters to be utilized "to determine the RCRA regulatory status of these wastes." The Section defines these terms as "the constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.100/40 CFR 261.24." These terms are used in a similar manner in WAP Table B-2. NM's hazardous waste regulations at 40 CFR 264.13(b)(1) requires a WAP identify the parameters each waste will be analyzed for, to properly manage that waste. NMED interprets this to include the parameters necessary to determine the LDR status of a waste, including the applicable treatment standard. As the term "RCRA-regulated" is used in the WAP, it is not clear whether SNL intends to only characterize wastes for the 39 constituents listed at § 261.24 Table-1 to make a hazardous waste determination and whether SNL intends to characterize wastes for the approximately 250 underlying hazardous constituents (UHCs) listed at §	DOE/Sandia note that the terms "RCRA-regulated waste" and "RCRA-regulated waste management unit" are included in the definitions at the beginning of the General Part B (page SW-x). To avoid redundancy, the definitions are not generally repeated in other sections. The only exception is that the definitions are included at the beginning of the site-wide contingency plan (Appendix E) because this section is provided separately to emergency response organizations. The definitions are: "<u>RCRA-regulated waste:</u> For the purposes of this permit renewal request/application and Unit-specific modules, a waste that meets the regulatory definition of either hazardous waste or hazardous/radioactive mixed waste. " "<u>RCRA-regulated waste management unit (Unit):</u> For the purposes of this permit renewal request/application and Unit-specific modules, a specific operational area subject to a RCRA permit that is used for the treatment and/or storage of RCRA-regulated waste. The Units that are the subjects of this permit renewal request/application are described in Unit-specific modules. " These definitions make it clear that the term "RCRA-regulated waste" refers to waste that meets the definition of hazardous waste or mixed waste. "RCRA-regulated wastes" do not include solid wastes that do not meet the definition of hazardous waste in 40 CFR 261. DOE/Sandia have revised most or all of the references to "RCRA-regulated" characteristics and constituents to "hazardous waste" characteristics and constituents throughout the Comprehensive Part B Permit Request. We note that the <u>wastes</u> may be hazardous or mixed, but the <u>waste characteristics or constituents</u> under consideration are those associated with the hazardous waste component of the RCRA-regulated waste. "RCRA-regulated constituents" did not and does not refer to constituents in underground storage tanks. The regulatory references in Table B-2 and new Table B-3 have been revised and corrected. They are discussed in the response to Comment 8. DOE/Sandia note that the hazardous waste management activities subject to this permit are storage and treatment. Thus the information necessary to properly manage (store) hazardous wastes at a permitted waste storage unit in compliance with the requirements of 40 CFR 268 is limited to

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	268.48. The WAP must be revised to appropriately use the term "hazardous". WAP Section B.3.3 provides another example of the inappropriateness of the term "RCRA-regulated". The Section states, "RCRA-regulated wastes may be generated during treatment operations at SNL/NM Units. Alternatively, treatment operations may generate waste that are no longer RCRA-regulated." The only circumstances that would cause a waste to be "no longer RCRA-regulated" would be for non-listed waste to be de-characterized and all of its UHCs to meet their respective universal treatment standard, or for a waste with a technology based LDR treatment standard to have been treated by that technology.	knowledge of whether the individual wastes are subject to the prohibitions on storage of restricted wastes specified in 40 CFR 268.50. As stated in Section B.6.2.1 (formerly B.5.2.1), DOE/Sandia conservatively declare that all RCRA-regulated wastes stored at SNL/NM Units are subject to the prohibitions in 40 CFR 268.50. Because of this declaration, it is not necessary to further characterize stored wastes with respect to 40 CFR 268 to meet the requirements of 40 CFR 264, including the requirements of 40 CFR 264.13. Characterization of treated wastes in revised Section B.2.5 (formerly B.3.3) has been updated to reflect changes in the regulatory requirements in 40 CFR 261.3(g) regarding listed hazardous wastes that were listed solely because they exhibit one or more of the hazardous waste characteristics of ignitability, corrosivity, or reactivity, and have been treated on site at SNL/NM to remove the characteristic(s). The changes also describe more clearly the requirements for characteristic hazardous wastes that have been treated on site at SNL/NM to remove the characteristic(s).
42	**UHCs** WAP Section B.3.3, last sentence states, "The analysis will also include UHCs that are reasonably expected to be present in the treated wastes." WAP Table B-3 must be revised to address all applicable parameters including all the UHCs identified in the Table of Universal Treatment Standards at 40 CFR § 268.48.	As noted in revised Table B-4 (formerly B-3), all of the UHCs that are reasonably expected to be present in the treated wastes are included in the analytical suites.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
43	**Treatment Standards** WAP Section B.3.2 states, "Wastes to be treated at SNL/NM will be characterized to determine suitability for treatment…." SNL must identify which of the treatment methods discussed in Section B.3.3.2 are suitable for treating wastes with applicable LDR standards specified at 40 CFR § 268.40 as total waste standards as defined at § 268.40(a)(1).	DOE/Sandia treat wastes to meet one or more goals, including compliance with treatment standards in 40 CFR 268.40, 268.42 and/or 268.45. For each waste being treated to meet one or more treatment standards, DOE/Sandia identify the appropriate standard and check the treated waste (through methods summarized in Section 8.3 of Modules II, III, and V) to determine whether the treatment was effective. The appropriate treatment standard and treatment results are documented in the operating record and are available for NMED review. Thus it is not necessary to specify treatment methods in advance. DOE/Sandia have capabilities for several kinds of treatment, and perform treatment on a variety of wastes on site. Each of the three types of treatment standards listed in 40 CFR 268.40(a) (including the total waste standards as defined at 268.40(a)(1)) applies to one or more of the various wastes and treatment methods used at the TTF, the existing RMWMF/future CWMF, and the AHCF. Many of the treatment methods (e.g., chemical deactivation and stabilization) are applicable to RCRA-regulated wastes with a wide range of hazardous waste codes, constituents, characteristics, and physical forms. Because there are so many possible combinations of waste constituents, hazardous waste codes, waste forms, and treatment methods, it is not feasible to specify in advance which methods will be suitable for meeting treatment standards that are based on total constituent concentrations in the treated waste. Discussions regarding the effectiveness of each method of treatment have been deleted from revised Section B.2.5.2 (formerly B.3.3.2). Effectiveness is now described in Section 8.3 of Modules II, III, and V for the TTF, RMWMF/CWMF, and AHCF respectively). Characterization of the treated wastes is discussed in Section B.2.5.2 (formerly B.3.3.2) and is summarized in new Table B-3.
44	**Regulatory citation** SNL inappropriately cites the regulations throughout the WAP by referencing regulations that became effective 6-14-00. These WAP citations may or may not be affected by new regulations that became effective 10-1-03. SNL must revise the application to reference the appropriate regulations. See the new regulations at NM's web page (www.state.nm.us) and link through Government/Laws and Statutes/Code.	The regulatory references have been updated in all sections of Volume 1 of the Comprehensive Part B Permit Request.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
45	**Authorized wastes** WAP Section B.1.1, 2nd Paragraph states, "The General Part A also lists the EPA Hazardous Waste Numbers that may be assigned to the wastes that will be treated in containers or the miscellaneous unit at SNL/NM." The Part A pages 15-17 identify numerous waste codes that can be treated via the six (6) treatment technologies on page 3. The Part A inappropriately does not identify the X02 or X03 process code identified on pages 15-17, the units of measure, nor the description of the process in fields 8 or 9. Is the thermal deactivation process identified on page 3 actually a miscellaneous unit with an X code? NMED requires that the Part A be revised appropriately.	The waste treatment codes on pages 5-17 of the Hazardous Waste Permit Information Form in the General Part A have been corrected and revised to show all the applicable treatment codes and corresponding descriptions for each waste that may be treated at one or more of the SNL/NM Units. All of the treatment is X01 or T04, and the specific types of treatment applicable to each waste code are described in Column D2 for those wastes that are treated on site. The volumes and units of measure listed on pages 5-17 are for storage only. Note that the code for container storage (S01) is specific, so it is not included in the description in Column D2. Each waste (EPA Hazardous Waste Number) that is treated at SNL/NM can be treated at more than one unit, and most can be treated by more than one method. The amounts and units of measure specific to each type of treatment are listed on page 3 of the Hazardous Waste Permit Information Form. The capacities and annual quantities of waste treated by each method at each Unit are included in Appendix B to the General Part A. X02 and X03 were mistakenly included in the treatment codes listed on pages 15-17 in Revision 5.0 of the General Part A; they were deleted in Revision 6.0, submitted to NMED in November 2003. Thermal deactivation is properly identified in the General Part A as T04; it is treatment performed in an enclosed portable unit that meets the definition of a container. The unit is not a miscellaneous unit.
46	**Typographical error** WAP Section B.3.1.3.1, 1st Paragraph, second bullet, requires the word "by" between provided and the.	Change made. This bullet is now the second bullet in revised Section B.2.6.1.
47	**Typographical error** WAP Section B.3.3.2, 1st Paragraph, 10th bullet uses the word "successive" inappropriately.	The word has been changed to "successful". This bullet is now the fifth bullet in revised Section B.2.5.2.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
48	**Second NOD Comment #325 – List of Active Test Sites.** Again, Solid Waste Management Units (SWMUs) 83, 84, and 240; and the active septic systems (No. 1004, 1025, and 1094) are unlikely to include all outdoor test sites at SNL. In many cases, there may be no appreciable difference between active sites and inactive sites that are currently recognized as SWMUs. The NMED does not understand the DOE/SNL's reluctance to provide information concerning this issue, given that the NMED can acquire such information during the course of a RCRA Facility Assessment. DOE/SNL must provide a list of all outdoor active test sites. The list must include the name, location, and a general description of the type or types of testing at each active test site.	DOE/Sandia note that Permit NM5890110815-1 Section IV.G.1 specifies that DOE/Sandia must notify NMED within 30 calendar days after discovery of any solid waste management unit (SWMU). However, not all active test sites are SWMUs or have the potential to become SWMUs. A SWMU is defined in Section IV.A of permit NM5890110518-1: "...any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released." Thus, in order for an outdoor test site to be a SWMU, the activities must have involved the release of solid wastes. DOE/Sandia note that existing outdoor test facilities at SNL/NM are sometimes used for activities which involve release of various materials; however, the released materials are not solid wastes and the facilities are not SWMUs as long as two conditions are met: • The releases are part of the intended use of the materials (e.g., the test) and • The materials are on site and have not been discarded by being abandoned or disposed. Both of these conditions are met at outdoor test facilities at SNL/NM. DOE/Sandia note this approach is fully consistent with EPA's position regarding military munitions and firing ranges, where munitions that are present in the soils at active and inactive ranges are not solid wastes as use of the military munitions for their intended purpose is not a waste management activity and does not constitute abandonment or disposal (62 FR 6629-6633, February 12, 1997). EPA has applied this approach consistently, through regulations and interpretations (e.g., a May 1986 memo from Bruce Weddle of EPA regarding corrective action at the Department of Defense's Aberdeen Proving Ground FAXBACK 12646). DOE/Sandia consider the environmental consequences as part of the planning process for outdoor test activities. The test activities are designed to mitigate environmental impacts, including releases of materials which are or could become solid wastes. Because of the planning and mitigation, most of the activities conducted at outdoor test facilities at SNL/NM will not create future SWMUs. DOE/Sandia agree with NMED regarding the need to monitor current and future activities that could lead to creation of future SWMUs. Therefore,

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
		beginning in December 2005, DOE/Sandia will provide an annual report to NMED with a brief summary of outdoor activities in Tech Area III and remote test facilities. DOE/Sandia will continue to notify NMED of newly identified SWMUs in accordance with existing permit condition IV.G.1.
49	**Second NOD, Comments #29-55 (except #30) – Corrective Action Management Unit (CAMU)** As indicated in DOE/SNL's responses, the DOE/SNL have submitted a revised CAMU Post-Closure Care Plan to the NMED, dated June 2003 (hereafter referred to as the June 2003 PCCP). This document is intended to replace the current CAMU Permit, and eventually is intended to replace the original CAMU permit application submitted in February 2002. All but one of the comments #29-55 of the 2nd NOD have been either addressed to the NMED's satisfaction in the June 2003 PCCP, or they have been included again in a separate NOD issued by the NMED on December 12, 2003. DOE/SNL must respond to the NOD issued for the June 2003 PCCP by April 9, 2004, the current due date.	DOE/Sandia responded to the NMED Notice of Deficiency (NOD) on April 9, 2004, and provided a revised version of the Corrective Action Management Unit (CAMU) Post-Closure Care Plan (PCCP). On July 12, 2004, the NMED issued a second NOD. DOE/Sandia responded to the second NOD on August 31, 2004, providing page changes for NMED review and approval. On September 14, 2004, the NMED issued a third NOD, identifying two remaining issues. DOE/Sandia responded to the third NOD on November 14, 2004. Upon NMED approval, DOE/Sandia will prepare and transmit a final version of the CAMU PCCP.
50	**Second NOD, Comment # 30 – CAMU.** The following comment must be addressed in response to this NOD. Section 3.1.1, Physical and Chemical Characteristics of Waste to be Managed, page 3-11, second paragraph, last sentence states: "Hazardous remediation waste containing Toxic Substances Control Act (**TSCA**) contaminants … may also be generated as a result of ER Project corrective action activities; management of these remediation wastes at the CAMU requires compliance with TSCA regulations…and New Mexico Solid Waste Act regulations for asbestos-containing wastes." DOE/SNL's responses to the 2nd NOD include a copy of an approval letter for the management of PCBs. Unfortunately this letter does not mention specifically the CAMU. Please provide additional supporting information that this approval letter refers to the CAMU (such as dated correspondence referenced in the approval letter that mentions the CAMU).	The DOE/Sandia risk-based request for management of polychlorinated biphenyls (PCBs) under 40 CFR 761.61(c) at the CAMU and Chemical Waste Landfill is enclosed. DOE sent the request on October 30, 2001, and EPA received it on November 6, 2001.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
51	**NOD Response #5 to Second NOD comments # 64, 65 and 66 regarding inspections and level of detail and quantities of spill control material in general:** The response states that DOE/SNL maintain sufficient quantities to address release of waste from a container. This response is inadequate. As the authorizing agency, how is NMED supposed to determine whether SNL maintains sufficient resources to deal with spills if no formula is supplied for determining what constitutes an adequate amount. DOE/SNL should incorporate this information into the permit application.	Wastes are stored in individual containers. Liquid wastes are rarely stored in primary containers larger than 55 gallons (e.g., a 55-gallon drum of liquid may be stored in a larger overpack drum). Most liquids are stored in primary containers smaller than 55 gallons. It is highly unlikely that the integrity of more than one primary container of liquid waste would be breached at any given time. Therefore, quantities of absorbent sufficient to contain 55 gallons of liquid are adequate and are kept on hand at each Unit when liquid wastes are present. If liquid wastes are present in one or more primary containers larger than 55 gallons, sufficient absorbent to address the full container will be maintained at the Unit as long as the wastes are present.
52	**NOD Response #3 to Second NOD comment #61** 20.1.500 NMAC, incorporating 40 CFR §264.17(a) requires that ignitable, reactive and incompatible waste be separated and protected from sources of ignition. One potential source of ignition at the HWMF is an airplane crash into this facility due to the fact that this facility is located directly below the flight path for the main east-west runway of Albuquerque airport. DOE/SNL should acknowledge this fact in their permit application and address the issue concerning its potential as an ignition source.	As noted in revised Appendix A (Section A.5.3), DOE/Sandia evaluated the probability and consequences of airplane crashes into various SNL/NM facilities in 1999 (DOE/EIS-0281). The probability was calculated by considering the number of aircraft operations such as takeoffs, landings, and flyovers; the probability that an aircraft will crash; the probability that, given a crash, the aircraft will crash into a 1-square-mile area containing the facility of interest; and the size of the facility of interest. The probability of airplane crashes is higher at facilities closer to the airport (such as the HWMF). However, the probability at these facilities is very low – approximately 90 in 1 million in the area near the HWMF. An aircraft crash would be equivalent to a fire or explosion at the HWMF or any of the other SNL waste management units. Actions to be taken in response to fires or explosions are described in Section 5.0 of the Contingency Plan (Appendix E)
53	**NOD Response #3 to Second NOD comment #61** In accordance with 20.1.500 NMAC, incorporating 40 CFR §264.17(a) - Another ignition source at most of the management units are the building electrical systems. Provide information on how they are designed so that they are not an ignition or fire source.	Areas where containers of ignitable or reactive wastes may be opened as part of typical operations are equipped with ventilation systems to control accumulation of hazardous vapors or with intrinsically safe electrical systems as needed, as described in revised Section 1.1.2.1 of the General Part B and in Section 1.2.2 of the modules for each Unit where such activities take place.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
54	**National Fire Protection Association (NFPA 30) Standards.** For each waste management area used for the storage of flammable waste, discuss how the waste and storage meet the requirements of the National Fire Protection Association (NFPA 30) standards.	The requirements of the applicable National Fire Protection Association (NFPA) codes, including NFPA 30 "Flammable and Combustible Liquids Code" are reflected in the design of the fire suppression systems that are summarized in Section 1.2.3.1 of the Unit-specific module for each Unit that is equipped with sprinkler systems. The information provided in Sections 1.1.2 and 1.1.3 of the General Part B, together with the additional information in Section 1.2 of each Unit-specific module, fully describe the management of ignitable, reactive, and incompatible wastes and meet the requirements of40 CFR 264.17 and 264.32.
55	**Appendix C, Section C.5 -** states that containers are visually inspected at the time of pickup from a generator site or within 24 hours of acceptance at a Unit in accordance with Container Level 1 standards under 20.4.1.500 NMAC, incorporating 40 CFR §264.1086(c)(4)). The general weekly inspection form has a line item for inspection of the covers but this does not demonstrate that the Level 1 Containers were inspected within 24 hours of receipt. In addition, this Unit inspection form will not satisfy a requirement that applies to individual containers. Please discuss how this inspection is documented? It would appear that this inspection should be addressed as part of the waste acceptance criteria.	All containers are handled when they are received at the waste management Units, because they are moved from the transport vehicle into staging and/or storage areas. The container inspection requirements in Appendix C (Section C.5) have been revised to clarify that the requirements apply to handled containers in addition to stored containers. The detailed container criteria in Section 4.0 of each module are applied to containers that are subject to the requirements of 40 CFR 264 Subpart CC. This inspection addresses the Container Level 1 standards. Containers that do not meet the standards are not entered into the Unit inventory until they are repackaged or overpacked to meet the requirements. The repackaging activities are documented in the daily inspection form (Figure C-1 in Appendix C). Containers that meet the standards are entered into the Unit inventory, and compliance is documented by their presence in the inventory. Observations made during waste handling activities (e.g., containers that do not meet the Container Level 1 standards) are documented on inspection forms, in the same manner as formal inspections. Corrective actions are documented using the inspection forms, whether the conditions were observed during waste handling or discovered during inspections, as described in revised Section C.1.2.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
56	**The HWMF and RMWMF Modules, Section 1.2.2, Second bullet**, states that ignitable and reactive waste managed at these units buildings after receipt and for treatment are kept apart. Describe how this will be accomplished.	Section 1.2.2 of each module has been revised to clarify the management practices for ignitable and reactive wastes. Spontaneously ignitable and water-reactive wastes are stored in the modular buildings at the HWMF and existing RMWMF/future CWMF. In Units with holding cells and bays, wastes (including ignitable and reactive wastes) are segregated into the various bays. In Units without holding cells or bays, liquid wastes are grouped together on spill pallets by compatibility, and solid wastes are also grouped by compatibility. When ignitable and reactive wastes are managed in various areas for treatment and repackaging, Unit personnel keep them separated from other wastes present in the area (e.g., on a separate spill pallet, across the room, etc.)
57	**Second NOD, Response # 23 and HWMF Section 1.2.1** The New Mexico Hazardous Waste Management Regulations 20.4.1.500 NMAC, incorporating 40 CFR §264.175(b)(2) require that the containment system be designed and operated to drain and remove liquids or the containers are elevated or otherwise protected from contact with liquids. Merely inspecting the shelves in Building 959 regularly for accumulation of liquids does not protect or prevent containers from contact with liquids. In addition, it is NMED understanding that containers are stored temporarily in the “Work Space” of the packaging area. Please review the management practices and present a discussion on how containers are kept from contact with liquids and how the requirements §264.175 are met for these areas.	As described in revised Sections 1.1.1 and 1.2.1 of Module I, the shelves in Building 959 contain removable grating to elevate the bottoms of containers placed on the shelves. In addition, the shelves are lined with absorbent spill pads under the removable grating that absorb liquids to prevent contact with the containers. These measures meet the requirements of 40 CFR 264.175. Containers are not stored in the “work space” of the packaging area at any time. Waste is staged in the packaging area during packaging and labeling activities and then placed into the appropriate storage areas in Building 958, 959, or the modular storage buildings. Storage areas at the HWMF are designed and operated to meet the requirements of 40 CFR 264.175.
58	**HWMF Module I, Section 1.3.2.2** The storage configuration and stacking arrangements for Building 959 are not discussed. Please provide this information under the current section.	The information is included in revised Section 1.3.2.2 of Module I.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
59	**General and Unit Specific Closure Plans** DOE/SNL's Application is required to have a closure plan for full or partial closure of the facility. See § 270.14(b)(13). The Application illegally relies on submission of a sampling and analysis plan, at an undefined point in time, to provide the details required in all the closure plans contained in the Application, Appendix F, §§ F.6 & F.7; Module I, Appendix F, §§ 7.4, 7.5 & 7.6; Module II, Appendix F, §§ 7.4, 7.5 & 7.6; Module III, Appendix F, §§ 7.4, 7.5 & 7.6; Module V, Appendix F, §§ 7.4, 7.5 & 7.6; and Module VI, Appendix F, §§ 7.4, 7.5 & 7.6. The Application must establish those closure details, which can be reasonably specified now. The closure plans must have sufficient detail to perform partial or final closure at any time during the active life of the Facility, as required by 20.4.1.500 NMAC, incorporating 40 CFR § 264.112(b) and (b)(3). There must be sufficient detail to close a unit in the event of unexpected closure. Closure and post-closure plans "should include sufficient detail to allow a third party to conduct closure or post-closure care..." 51 Fed. Reg. 16422, 16426 (May 2, 1986). The closure plan for the units proposed for permitting must include "a description of the methods for decontaminating the facility, sampling and testing procedures, and criteria to be used for evaluating contamination levels." 51 Fed. Reg. 16422, 16426 (May 2, 1986). Where specifics cannot be provided, DOE/SNL must provide general provisions which adequately address the regulatory requirements, (e.g. If it is not feasible to identify the exact number and location of confirmatory samples, general categories could suffice, such as swipe sampling all walls and floors, any visibly stained or discolored area, and underlying soils if the containment integrity of the unit may has been breached (e.g. cracks in the floor)). NMED does not approve of the overall strategy for the closure of the Container Storage Units involving the initial wipe sampling method to verify whether or not contamination exists and therefore, requires decontamination. NMED does not believe that the limited coverage associated with the random wipe sampling method proposed in Phase I: Initial Sampling and Analysis, can demonstrate that the entire unit is clean and therefore does not require any of the decontamination procedures outlined in Section F.5.3 - Phase III: "Decontamination Procedures of the Closure Plan". NMED requires that all container storage units and equipment be washed using a high-pressure washer/steam cleaner or scrubbed with mops/sponges and soap and water solution as described in Section F.5.3 of the Closure Plan. NMED recommends that the unit be divided into	DOE/Sandia note that the closure plans (both the site-wide and Unit-specific plans) included in Revision 3 of the Comprehensive Part B Permit Request (November 2003) included "a description of the methods for decontaminating the facility, sampling and testing procedures, and criteria to be used for evaluating contamination levels." 51 Fed. Reg. 16422, 16426 (May 2, 1986). DOE/Sandia have revised the closure procedure to incorporate decontamination of container storage areas and equipment in a manner consistent with the most recent closure plan for the High Bay Waste Storage Facility (HBWSF). DOE/Sandia submitted the plan for the HBWSF to NMED on April 12, 2004. NMED held a 30-day public comment period from July 20 to August 19, 2004 and approved the closure plan in a letter dated November 16, 2004. The DOE/Sandia revised closure procedure is incorporated into the site-wide plan in Appendix F and into the Unit-specific closure plans in Section 7.0 of each module.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	sections and that the used wash water be sampled for chemicals of potential concern (COPCs) and radiological constituents in order to verify when decontamination is complete. NMED is currently working with SNL on the High Bay Waste Storage Facility Closure Plan in order to develop an acceptable closure procedure for all container storage units. Once the contents of this plan are worked out, the closure plan may be incorporated into the SNL Permit Application and subsequently the DOE/SNL operating Permit currently undergoing renewal.	

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
60	**GLOBAL COMMENT ON THE RMWMF, MSB, and AHCF** **a. Section 1.2 – Unit Operations** - These sections state that these "WMAs are used to store and/or treat any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the SNL/NM General Part A." <u>These sections should make it clear that **they treat and store radioactive mixed waste at the RMWMF and at the AHCF,** not just RCRA-regulated wastes.</u> **b.** "**RCRA-regulated" and "Non-RCRA-regulated**" **Waste**. NMED believes that DOE/SNL's use of the term "RCRA-regulated waste" in the Application is an effort to emphasize that NMED only regulates the hazardous portion of mixed wastes. It is not clear whether the term refers to a formerly hazardous waste that has been de-characterized yet must still undergo treatment to meet LDR treatment standards. It is also not clear whether the term refers to solid wastes that are regulated by RCRA. It is also confusing since RCRA regulated constituents could be construed to include regulated substances in underground storage tanks. NMED is also concerned that the phrase "RCRA-regulated constituents" may be too limiting, causing the Application to be deficient NMED is also concerned about the enforceability of a permit that uses an undefined term in place of a term that is defined (e.g., hazardous waste, hazardous waste constituent, hazardous waste management unit (40 CFR § 260.10)). The Application must be revised to use terms defined in RCRA, HWA, federal or state regulations. If DOE/SNL believe it is necessary to use terms not defined in current law, DOE/SNL must include a precise and clear definition of the term. **c. RMWMF, AHCF and MSB Emergency Equipment List** - These lists do not indicate that salvage drums or over pack drums are available at these facilities. This equipment is essential for the timely cleanup of spills. Either include these on the emergency equipment list or provide information on how spilled material will be dealt with. Also, the number of drums available should be indicated in order to determine if a sufficient amount are kept. See also comment #51 above.	a. The RCRA waste management requirements that are applicable to each Unit are determined by the types of waste handled at the Unit; therefore DOE/Sandia specify which of the wastes listed in the General Part A are managed at each Unit. All operating waste management Units at SNL/NM except the TTF are used or can be used for management of mixed hazardous/radioactive wastes. b. See the response to Comment 41. The term "RCRA-regulated" is used consistently throughout Volume I of the Comprehensive Part B Permit Request to describe any waste that meets the definition of hazardous or hazardous/radioactive mixed waste. The term "RCRA-regulated" is (and has been) included in the definitions at the front of the General Part B: "For the purposes of this permit renewal request/application and Unit-specific modules, a waste that meets the regulatory definition of either hazardous waste or hazardous/radioactive mixed waste." The same definition is included in the front of the site-wide contingency plan (Appendix E). DOE/Sandia have used the term "RCRA-regulated" instead of "hazardous" and/or "mixed" to simplify descriptions of the wastes that are subject to the requirements of the permit. Using a single term consistently also simplifies discussions of waste management operations and clarifies that the same requirements apply to hazardous wastes and to the hazardous component of mixed wastes. c. Equipment on site at each unit includes the equipment needed for the time-urgent emergency response, such as absorbent and other equipment needed to contain an uncontrolled release and stabilize the scene. Recovery drums and containers have been added to the lists of equipment in Section 6.0 of Modules III, V, and VI. As noted in the response to Comment 67, items that are needed for later cleanup after a release has been stabilized (shovels, overpack containers) are stored at the existing RMWMF/future CWMF where they are readily available to the personnel at both the RMWMF/CWMF and the MSB.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	THE RADIOACTIVE MIXED WASTE MANAGEMENT FACILITY (RMWMF)	
61	**Section 1.1, Designated Waste Management Areas** - For each building in which treatment is performed, identify the areas and the treatment technologies that are performed.	Additional information about specific types of treatment and locations has been added to Appendix B of the General Part A and to Sections 1.0 and 8.0 of Modules III (RMWMF/CWMF) and V (AHCF).
62	**Appendix C and Section 4.0 of each Module,** "**Inspections**" - The inspection schedule does not indicate that the sumps in building 6920 or the underside of the modular building will be inspected. Incorporate the inspection of the sumps and its frequency into the subject schedule.	Built-in sumps have been added to the list of operating and structural equipment in the inspection plan and schedule in Section 4.0 of Module III. The description of secondary containment that is included in the list of items related to containers has been revised to clarify that it is for portable secondary containment (spill pallets). The inside surfaces of the sumps in the modular buildings are included in the inspections. If there are problems with cracks, wear, or deterioration of the coating or structure, these will be visible first on the inside. Therefore inspecting the inside surfaces will provide the most timely and useful information. The underside of the modular buildings is not included because such inspections would be redundant.
	THE MANZANO STORAGE BUNKERS (MSB)	
63	**MSB and RMWMF Section 1.1** The second and third paragraphs of Section 1.1 in the RMWMF and second, third and fourth paragraphs in the MSB Modules discuss the containment systems used at these facilities. Consider presenting this information under Section 1.2.1 of their respective Modules.	Some of the waste storage areas are equipped with secondary containment systems that are integral to the buildings; these are included in the descriptions of the buildings in Section 1.1 of the modules for those Units (the HWMF, the TTF, and some of the areas at the AHCF and existing RMWMF/future CWMF). Secondary containment is addressed at the other Units (the MSB, and some areas of the AHCF and existing RMWMF/future CWMF) through use of portable secondary containment systems. In order to maintain consistency in the arrangement of information in each module, DOE/Sandia have included information about both types of secondary containment systems in Section 1.1 of each module.
64	**Section 1.2.2 -** Change the RMWMF acronym in the first paragraph to MSB.	Change made.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
65	**Section 1.2.2, first bullet** - How are the ignitable, reactive and water-reactive wastes kept segregated. Change the language regarding signage from “typically place” to “shall place”.	Methods of segregating incompatible wastes (described in a later bullet item in the list in Section 1.2.2) are also applicable to ignitable, reactive, and water-reactive wastes. The methods include keeping compatible liquids together on a single spill pallet that provides an independent secondary containment system, and keeping compatible solids together. The description has been revised to specifically mention its applicability to ignitable and reactive wastes. Each container (including containers of ignitable or reactive waste) is clearly labeled. Additional identifiers such as portable signs are typically used to further assist Unit personnel in identifying ignitable and reactive wastes; these additional identifiers are not required. DOE/Sandia may choose to use portable signs, prominent labels, colored pallets, or some other method. Unit personnel will choose an appropriate method after considering the need for additional identification, the waste, the container size and storage configuration, and the features of the storage area.
66	**Section 1.2.4.1, Preventing hazards in unloading:** This section states that personnel are made aware of weather conditions. What types of actions are taken by DOE/SNL to deal with weather situations, and what means do the Permit Applicants use to educate the personnel on weather conditions?	Operating personnel at the MSB are trained to be aware of weather conditions; the awareness consists of visual observation and knowledge of the general weather forecast. Personnel typically carry radios or mobile telephones. The MSB are not routinely staffed; the personnel are located at the existing RMWMF/future CWMF. Personnel at the RMWMF/CWMF are also aware of general weather conditions and are able to provide updated weather information to personnel at the MSB using the radios or telephones.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
67	**Section 1.2.4.1, Preventing hazards in unloading** It is noted in the Inspection Section, Table 2, that spills cleanup equipment, other than absorbents, (i.e. brooms, shovels, etc.) is stored at the RMWMF. There is also no mention of PPE, over pack drums or spare secondary containment pallets available at the MSBs to immediately address a release. DOE/SNL should elaborate on how spills and releases shall be managed or dealt with.	Personal protective equipment (PPE), consisting of chemical-resistant gloves and safety glasses, is stored at the MSB and has been added to the list of equipment in Revised Table 2 in Module VI. As described in the response to Comment 51 (and included in Tables 1 and 2 of Module VI), DOE/Sandia keep sufficient absorbent to contain 55 gallons of liquid at each Unit where liquid wastes are present. The materials needed for the time-urgent response to a release (i.e., PPE, eye wash, and absorbent) are maintained at each Unit. Items that are needed for later cleanup after a release has been stabilized (shovels, overpack containers) are stored at the existing RMWMF/future CWMF where they are readily available to the personnel at both the RMWMF/CWMF and the MSB. DOE/Sandia note that containers of liquids are stored in spill pallets that provide secondary containment; such secondary containment is likely to minimize the extent of any release.
68	**Sections 1.2.4.1, Preventing hazards in unloading and 1.2.4.2, Preventing run-off** The text states that the paved area used for unloading slopes away from the bunkers. The New Mexico Hazardous Waste Management Regulations 20.4.1.900 NMAC, incorporating 40 CFR §270.14(b)(8)(ii) require a description of the procedures and structures used to prevent run-off from the waste handling areas to the environment. What are the procedures or structures used by the DOE/SNL to prevent run-off of hazardous waste should a release occur during loading/unloading operations at the MSB?	Transport vehicles carry absorbent spill pillows/pigs and absorbent. The spill pillows will contain any spill or release of liquid wastes to the concrete surface immediately adjacent to and in front of the bunker doors and prevent run-off to surrounding areas. Personnel will add the absorbent to the contained liquid and place the absorbed waste into appropriate containers as described in Section E.5 of the Site Wide Contingency Plan (Appendix E).
	THE AUXILIARY HOT CELL FACILITY (AHCF)	
69	**Section 1.1, Designated Waste Management Areas** The storage capacity for the hot cell and work area are not included in this section. Also, identify the treatment areas and the treatment technologies that are performed in each area. This information should also be discussed in the Section 8.1 – “Treatment Operations”.	The storage capacities for the hot cell and work area are included in revised Section 1.1 and in revised Appendix B of the General Part A. DOE/Sandia also corrected the capacity of the container storage area at the AHCF. The types of treatment performed at the AHCF are listed in revised Section 1.4, together with the locations for each one. The locations are also specified in the discussion of each treatment in revised Section 8.1.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
70	**Section 1.1.5, Container Storage Area** This section discusses more of the individual secondary containment systems instead of the storage area itself. This section should discuss the features and construction details of the storage unit. The secondary containment systems should be discussed in Section 1.2.1 under "Operation of Containment Systems".	The revised description of the high bay area of Building 6597 in Section 1.1 includes more general information about the building construction and features. The container storage area is simply an area within the high bay, and does not have any additional features or construction details. DOE/Sandia have corrected the capacity of the storage area, as noted in the response to Comment 69. DOE/Sandia have not moved the information pertaining to the modular secondary containment systems, as explained in the response to Comment 63.
71	**Section 1.2.2, first bullet** This section states, "Water-reactive wastes are not routinely stored at the Unit." Describe the precautions that are taken when these wastes are stored at the Unit.	Water-reactive wastes are occasionally stored at Units equipped with automatic sprinklers or other water sources. The precautions are described in revised Section 1.2.2 of Module V and in revised Section 1.1.2.1 of the General Part B.
72	**Section 4.0, Inspections: Regarding storage in the silos.** This section states that containers will only be inspected before they are placed in the silos and again when they are removed. This does not meet the requirements of 20.4.1.500 NMAC, incorporating 40 CFR §264.174, which requires weekly inspections of containers. Provide information regarding the inspection of the silo themselves. Also, provide additional information regarding the construction and storage operations for the silos. Items such as construction material, types of material stored and how long these items are stored in the silos should be addressed. This information should be presented in the Unit Operations section.	Section 1.1.3 (formerly 1.1.4) has been revised to provide additional information about the construction of the silos. Various parts of Section 1.0 have also been revised to note that the silos are typically used for storage of RCRA-regulated wastes that exhibit high external radiation doses. The silos and their covers have been added to the inspection plan in Table 2 in Section 4; the empty silos are inspected monthly. The text in Section 4 has been revised to clarify the alternative inspection procedure used for containers of RCRA-regulated wastes when they are stored in the silos.
73	**Section 6.0, Contingency Plan, 4th paragraph, "During an emergency, Unit personnel will evacuate the unit…. In addition, Unit personnel may choose to implement a coordinated evacuation of all of TA-V."** Discuss the criteria or circumstances used to determine which evacuation procedures will be implemented during an emergency.	Section 6.0 has been revised to focus on emergencies at the AHCF and delete reference to other SNL/NM facilities.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
74	**Section 7.0, Pages AHCF-22 through AHCF-30: Closure Plan** The closure plan for this unit must include decontamination and sampling of the fume hood and exhaust equipment attached to the hot cell since they are part of the treatment operations.	The closure plan in Section 7.0 has been revised to clarify that DOE/Sandia have several options for addressing equipment at the AHCF. At the time of closure, DOE/Sandia will evaluate the fume hood and other equipment to establish whether it should be removed or decontaminated. The evaluation will include the exhaust system to the first filters. Both options (removal and decontamination) are included in the revised closure plan.
75	**Module V, Page AHCF-24, Treatment Plan, Third sentence from the top:** "The waste management areas at the AHCF that are used for the treatment of RCRA-regulated wastes include the Hot Cell, the Fume Hood, and the Work Area." Provide a description and sketch drawings of the equipment and tools used in the management and treatment processes for the hazardous and mixed wastes at the RMWMF and the AHCF. Explain how DOE/SNL will handle fugitive emissions from the various treatment units. Include what role the "Fume Hood" plays and how emissions are managed.	The thermal deactivation equipment at the existing RMWMF/future CWMF is shown in new Figure 23 in Module III. Other treatment activities are described in greater detail because it is difficult to provide representative drawings. Macroencapsulation, stabilization, and chemical deactivation are performed in commercially available containers (e.g., 5-gallon pails, plastic or metal trays, 55-gallon drums, etc), and there are no dedicated treatment units that can be shown in a drawing. Likewise, physical treatment is performed using hand tools (e.g., screwdrivers, hammers, saws, etc), so there are no dedicated treatment units that can be shown in a drawing. The fume hoods are commercially available work areas that are enclosed and equipped with local negative-pressure ventilation and exhaust. The ventilation systems at the RMWMF/CWMF and AHCF are described in revised Section 1.1 of Modules III and V. Air emissions from treatment operations are discussed in revised Section 8.2 (formerly part of Section 8.1) in Modules III and V.
76	**Module V, Page AHCF-24, Section 8.1, "Treatment Operations", Third and fourth sentences, "Each type of treatment will be performed on batches of 500 pounds of waste or less. Liquid wastes will be treated in batches of 60 gallons or less."** Explain in detail how emissions from the treatment operations handling the above amounts will be handled to protect human health and the environment.	As noted in revised Section 8.2 (formerly 8.1.5) most of the wastes treated at the AHCF (and the RMWMF/CWMF) are inorganic are not expected to generate air emissions. Wastes to be treated are characterized and evaluated to determine whether they are suitable for treatment. The evaluation includes the potential for air emissions and the protective measures necessary for operating personnel (see Section 1.1.4.5 of the General Part B for information about preventing undue exposure). Treatment involving chemical reactions (deactivation and stabilization) is conducted in a controlled manner, minimizing the potential for emissions. The treatment areas at each unit include flexible localized exhaust systems and fume hoods with particulate filters in the exhaust system to provide additional worker protection if needed. .

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
77	**Module V, Page AHCF-25, Section 8.1.1, "Chemical Deactivation", fourth paragraph: "Common deactivating reagents include, but are not limited to, caustic soda, lime…. calcium or sodium carbonate… and limestone for acid wastes, and hydrochloric, phosphoric, or nitric acids for alkaline wastes."** Since most of the above reactions are exothermic, provide information on how the process of mixing the waste in the vessel will be accomplished in a safe manner and the precautions that will be taken to protect the personnel health and related environment at and around the AHCF.	Deactivation will be performed in a controlled manner; the reagents will be added slowly and mixed thoroughly with the waste, as described in revised Section 8.1.1. As described in revised Section 8.2 (formerly 8.1.5) treatment operations that are expected to generate air emissions of gases, vapors, or particulates will be conducted in a controlled manner within the fume hood or the hot cell if possible. As noted in Section 1.1.4.5 of the General Part B, unit personnel wear personal protective equipment (PPE). For personnel performing treatment operations, the PPE includes (as needed) safety glasses, face shields, chemical resistant gloves, and coveralls.
78	**Module V, Page AHCF-26, Section 8.1.3, "Physical Treatment", second sentence", "The treatment consists of reducing waste volume by using tools to separate items with RCRA-regulated constituents from larger items."** Provide a schedule and related frequency of inspection for the treatment areas at the RMWMF and the AHCF. Include a description of the tools used in physical treatment for volume reduction, and also the frequency of inspection of the overhead cranes at both Units.	The inspection plans and schedules in Section 4.0 of Modules III and V have been revised to clarify that tools are included in treatment equipment. The descriptions of physical treatment in Section 8 of Modules III and V have been revised to note that tools include screw drivers, hammers, wrenches, pliers, saws, tin snips, cutters, etc. The description of physical treatment of aerosol cans at the RMWMF/CWMF has been revised to include additional information about the equipment. The inspection plans in Section 4.0 of Modules III and V have been revised to clarify that overhead cranes are included in the operating and structural equipment.
79	**Module V, Page AHCF-35, Section 8.2, Treatment Effectiveness, " Treatment effectiveness will be verified through evaluation of the treated waste in accordance with Appendix B (Section B.3.3.2) of the SNL/NM General Part B."** NMED checked the reference given by the Permit Applicants as being in "**Appendix B (Section B.3.3.2) of the SNL/NM General Part B**", where it is stated that information on treatment effectiveness could be found. The referenced text did not contain any information on treatment effectiveness. Provide detailed information on the treatment effectiveness both at the AHCF and the RMWMF, both of which contained identical statements.	Treatment effectiveness is discussed in Section 8.3 of the Unit-specific modules for each Unit where treatment occurs. Section 8.3 in Modules III and V have been revised to describe methods for evaluating the effectiveness of each type of treatment conducted at the RMWMF/CWMF and AHCF. Note that the methods described for evaluating treatment effectiveness are appropriate for each method.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
	THE THERMAL TREATMENT FACILITY	
80	**Section 8.2.2, Page TTF-35, first complete paragraph from the top of the page, 4th sentence, "If the inspection indicates that all the waste has been treated, the contents of the burn pan (i.e., ash) are removed, containerized managed, and characterized as described in Section B.3.3.1 of the WAP**." Provide a description of how and when DOE/SNL remove the ash and how they ensure that there are no kicked out explosives remaining after treatment. Provide a description of how complete ash removal is confirmed and whether the Permit Applicants let any significant amounts of ash remain.	Post-treatment operations are more clearly described in revised Section 8.1.2. The description includes inspection for kickout, decontamination, and treatment of the kickout. All loose residues are removed from the pan with plastic scoops or a vacuum cleaner equipped with a high-efficiency particulate air filter, as described in revised Section 8.1.2. Unit personnel do not allow significant quantities of loose residue to remain in the burn pan after treatment operations are complete.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
81	**Section 7.2, Unit Description, Page TTF-25, 2nd sentence, "The total quantity of RCRA-regulated waste treated in the TTF during its operating life will be estimated at the time of closure."** a. Explain why DOE/SNL would not currently provide an estimated amount of the waste that will be treated at the TTF during the term life of the operating permit. b. b. Indicate the locations from which DOE/SNL plan to take background soil samples for reference at closure of the TTF. Indicate the sample locations, with the appropriate legend and scale of the map, as well as the north arrow on Figure 10 of the response to the second NOD, which is titled "Thermal Treatment Facility (**TTF**), Closure Sampling Grid." It is recommended that the background soil samples be taken in areas not impacted by Open Burning activities.	a. The TTF was originally designed, built, and operated to treat explosive-containing wastes generated by research and development (R&D) activities in Building 6715 at SNL/NM. DOE/Sandia conducted R&D activities in Building 6715 and operated the TTF under interim status for several years before receiving Permit NM5890110518-2 in November 1994. After the permit was issued, DOE/Sandia did not conduct R&D activities in the building for several years and operated the TTF during that time to treat explosive wastes generated during activities at other areas at SNL/NM in accordance with the requirements of the permit. In 2003, DOE/Sandia refurbished the equipment in Building 6715, resumed R&D operations, and requested a Class II modification of the permit to reflect the revised operations. This history illustrates the variable nature of R&D work and the unpredictability of activities over the life of the permit. It is simply not possible to accurately estimate the future schedule of R&D activities or the quantity of waste generated by each test. Therefore, DOE/Sandia have deleted the statement regarding quantities of wastes from the closure plan. The total quantity of waste managed at a storage or treatment facility such as the TTF during its operating life (or during the term of a permit) is not relevant when planning closure because that waste is no longer present at the facility at the time of closure and therefore does not need to be incorporated into closure activities. The total quantity of waste managed during the life of a disposal facility would be an important part of the closure because that waste would still be present at closure. b. The closure approach has been revised to incorporate removal of the TTF equipment and the soil berm surrounding the TTF. Such a closure approach fully addresses any wastes and waste constituents that may have been released from the TTF during its operating life. DOE/Sandia recognize that improper operation of the TTF includes the potential for wastes and waste constituents to be released to the environment. Unit personnel are careful to avoid improper operation of the TTF, thereby minimizing the potential for such releases. Again, it is not possible to estimate the quantity of wastes or constituents that will be released during the life of the unit or during the term of the permit. Site-specific soil samples to establish background concentrations of silver are not needed. Silver is the constituent of wastes treated at the TTF that is most likely to be present at the TTF and the surrounding earthen berm, and DOE/Sandia have chosen silver as the indicator parameter for evaluating completion of closure. Acceptable

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
		concentrations of silver in soils have already been established by NMED in "Technical Background Document for Development of Soil Screening Levels, Revision 2.0", dated February, 2004.
82	**DOE/SNL's response to the first NOD Comment 415 stated that it "had determined that the TTF is the most appropriate method for treating the explosive wastes generated" at Building 6715. Further, in response to first NOD Comment 360 stated, "onsite deactivation through open burning/open detonation is the method most protective of human health and the environment."** Provide backup documentation for this determination and any evaluation of whether there is a more appropriate technology to meet the performance standards. In addition, provide an evaluation of the feasibility and performance of current treatment and control technology, specifically enclosed treatment technologies, for treating the wastes generated at Building. 6715, including but not limited to, on-site use of: 1. The thermal deactivation device (Application, Mod. III, § 8.1.5), or similar technology, 2. A blast chamber (similar to devices used to detonate waste military munitions), or 3. An enclosed incineration device. This information is being required pursuant to 42 U.S.C. 6925(c)(3) and 20.4.1.500 and 900 NMAC (incorporating 40 CFR § 264.601 and § 270.23(e).	As noted in the response to NMED NOD 1 Comment 360, published technical data (Wilden, 1986), indicate the SASN treated at the TTF is categorized as a primary explosive. SASN crystals are formulated in solution and each discrete crystal has the potential to detonate. SASN is also a Class A explosive as defined in 49 CFR 173.5, and is not approved for transportation on public roads. The TTF is an existing facility that was specifically built to treat SASN slurry and SASN contaminated waste for these reasons. The wastes treated at the TTF may also contain pentaerythritol tetranitrate (PETN), another explosive compound. As described in Module II (Section 8.1) the waste generated in Building 6715 is both reactive and ignitable, and it is a mix of liquids and solids. DOE/Sandia have considered other deactivation or combustion processes, including those listed in the comment. Each of the processes listed in the comment is suitable for some (but not all) of the properties of the waste: • The thermal deactivation device at the existing RMWMF/future CWMF is designed to treat small quantities of solid explosives in batches by heating them to a temperature at which the explosive decomposes or detonates within the chamber. It is not suitable for treating explosive-containing ignitable liquids such as the acetone or acetonitrile that are an integral part of the wastes generated at Building 6715. • A munitions blast chamber is designed for solid munitions items and would not provide controlled treatment of the liquids that are part of the waste, as noted above. • Enclosed incinerators provide controlled combustion of either solids or liquids that do not detonate. The SASN waste contains both solids and liquids with the potential for detonation within the combustion chamber. The abrupt pressure changes caused by detonation can damage the equipment and reduce the effectiveness of the operations. As noted in Module II (particularly Sections 1.2, 8.1, and 9.0), the TTF is designed and operated to provide complete waste treatment without adverse effects to human health and the environment. The system is designed to provide complete combustion and withstand detonations that may occur during operations. When considering all aspects of managing the waste - handling, packaging, transportation, and treatment requirements - DOE/Sandia conclude that on-site treatment at the TTF is the method most protective of human health and the environment.

No	NMED Comment (Third NOD, HWB-SNL-02-002)	DOE / Sandia Response
83	**Response to First NOD Comment 53: Page SW-11, Section 1.1.2.2, last paragraph of that Section, which states that** "Containers holding ignitable or reactive waste are located at least 50 feet from the SNL/NM facility property line at all time and are protected from sources of ignition or reaction as required by 20 NMAC 4.1.500/40 CFR 264.176." Because of the large public population at SNL and Kirtland AFB that is not involved in hazardous waste operations, NMED requires that ignitable or reactive waste be stored at least 50 feet from the unit property (e.g. fence) line. Provide updated scaled unit diagrams or data demonstrating the existence of this 50-foot buffer zone from the security fence around each unit, particularly the HWMF, where the Modular Buildings are only about 2 feet from the KAFB fence line; or if there isn't a fence, then indicate the security fence 50 feet from any area where members of the public could have access. Alternatively, provide a schedule for moving waste from the Modular buildings to storage areas located more than 50 feet from the security fence. (20.4.1.900 NMAC, incorporating 40 CFR §270.32(b)(2), and § 270.10(k).	The modular buildings are located near the west edge of the HWMF, and they are approximately 12 feet from the fence that surrounds the HWMF. The DOE property line is approximately 650 feet west of the fence. DOE/Sandia will install another fence west of the HWMF to provide additional access control; the new fence will be 50 feet from the modular storage buildings. The existing fence will not be removed or affected by installation of the new fence. The area is currently not fully accessible due to nearby construction activities; the fence will be installed after construction is completed. Fences are shown on the scaled topographic maps included with each Unit-specific module, as described in Section 2.4 of each module.

Attachment B

Additional Material Submitted in Response to NMED Comment 50

Department of Energy
National Nuclear Security Administration
Albuquerque Operations Office
Kirtland Area Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

OCT 30 2001

CERTIFIED MAIL--RETURN RECEIPT REQUESTED

Mr. David Neleigh, Section Chief
New Mexico Federal Facilities Section
Multimedia Planning and Permitting Division
U.S. Environmental Protection Agency, Region 6
Dallas, TX 75202-2733

Dear Mr. Neleigh:

On behalf of the Department of Energy (DOE) and Sandia Corporation, DOE is requesting approval under 40 CFR 761.61(c) for risk-based management of regulated polychlorinated biphenyls (PCB) materials at Sandia National Laboratories, New Mexico (Sandia) (EPA ID No. NM5890110518). Regulated PCB materials include two categories of remediation waste: soils containing PCBs at concentrations greater than or equal to 50 parts per million (ppm) and debris exhibiting PCB contamination in excess of decontamination standards defined in 40 CFR 761.

These regulated PCB materials result from the ongoing excavation of the Chemical Waste Landfill (CWL), a unit that is undergoing closure under the Resource Conservation and Recovery Act (RCRA) as implemented by the State of New Mexico. Although the CWL was used primarily for the disposal of hazardous wastes, pre-excavation sampling indicated the presence of PCBs in some areas of the landfill. Notification of the PCB cleanup was sent to the Environmental Protection Agency (EPA), Region VI, on December 17, 1998.

Approximately 50,000 cubic yards of soils have been excavated from the CWL to date. Of this volume, approximately 4,750 cubic yards of soil contain PCBs at concentrations greater than or equal to 50 ppm. This submittal is a request for approval of a risk-based approach for the management of regulated PCB materials. The risk-based approach assumes that 10,000 cubic yards of regulated PCB soils will be managed, an estimate chosen to conservatively bound soil volumes excavated to date plus any soils generated through future excavation.

The regulated PCB materials are currently stored at the CWL and the co-located Corrective Action Management Unit (CAMU). Storage is authorized by EPA under 40 CFR 761.61(c), effective through September 4, 2001 and extended conditionally, pending a final determination on this risk-based request.

The enclosed document, "Risk-Based Approval Request, 40 CFR 761.61(c) Risk-Based Method for Management of PCB Materials," identifies a number of management activities for which approval is requested, both at the CWL and the CAMU. We have consulted with your staff, as well as the staff of the New Mexico Environment Department, in preparing this request.

If you have any questions regarding this request, please contact Joe Estrada of my staff at (505) 845-5326.

Sincerely,

George K. Parker

for Michael J. Zamorski
Area Manager

cc w/enclosures:
G. Miller, USEPA, Region VI (2 enclosures)
J. Kieling, NMED
W. Moats, NMED
M. Gardipe, DOE/AL/ERD
K. Griffith, DOE KAO
J. Parker, NMED-OB, Santa Fe
R. Kennett, NMED-OB
CAMU Site Operational Record, Attn: A. Vega, SNL, MS 1151

cc w/o enclosures:
J. Bearzi, NMED
B. Oms, DOE/KAO
J. Estrada, DOE/KAO
F. Nimick, SNL, MS 1089
M. Davis, SNL, MS 1089
E. Krauss, SNL, MS 0141
D. Miller, SNL, MS 1088
S. Young, SNL, MS 1088
M. Irwin, SNL, MS 1151
D. Kwiecinski, URS, MS 1088

Certification Statement for Approval and Final Release of Documents

Document title and author: Approval Request for Risk-Based Management of PCB Remediation Waste, October 2001

As required by 40 CFR 761.61(a)(3)(E), I certify that the following information, related to the management of polychlorinated biphenyl (PCB) contaminated remediation waste at the Chemical Waste Landfill (CWL) and the Corrective Action Management Unit (CAMU), is maintained onsite at the CAMU, located within Technical Area III of Sandia National Laboratories on Kirtland Air Force Base:

- sampling plans, sample collection procedures, sample preparation procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the CWL.

The identified records are maintained at the CAMU facility and are available for inspection by the Environmental Protection Agency.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Peter B. Davies — 10/24/01
Date

Peter B. Davies
Director
Geoscience & Environment Center, 6100
Sandia Corporation
Albuquerque, New Mexico

and

George K. Jackson — 10/29/01
Date

Michael J. Zamorski
Area Manager
Kirtland Area Office
U.S. Department of Energy
Albuquerque Operations Office
Owner and Co-Operator

Attachment C

Summary of Corrections and Clarifications

Parts 1 and 2
Comprehensive Part B Permit Request

Attachment C

Summary of Corrections, Clarifications, and Updates

Part	Section	Description of Revisions	Reason for Revisions
1	Overview	Update information about various waste management units at SNL/NM	Revise to reflect current information and to incorporate future CWMF facilities and operations.
1	General Part A, Hazardous Waste Permit Information Form	Revise process design capacities (p. 3).	Correct errors in reported capacities for existing units, include future CWMF, and update treatment capacity to incorporate use of larger containers.
1	General Part A, Appendix A	Update list of active permits.	Revise to reflect updated information.
1	General Part A, Appendix B	• Revise capacities for HWMF. • Add storage capacities for future CWMF. • Revise treatment capacities for RMWMF/CWMF. • Add footnotes.	• Correct errors in reported capacities. • Add information for future CWMF facilities and operations. • Provide additional information about operating practices, noting that macroencapsulation may occur in larger containers. • Provide additional explanation.
1	General Part A, Appendix B, Figures	Add figures depicting future CWMF Buildings 6920, 6926, and modular storage buildings; revise figure numbers	Add information for future CWMF facilities and operations.
1	General Part A, Appendix B, Photographs	Revise captions on photographs of the RMWMF	Add information for future CWMF facilities and operations.
2	General Part B	Add references to future CWMF facilities and operations in text and figures	Provide information.
2	General Part B, Appendix A	Add references to future CWMF facilities and operations in text and figures	Provide information.
2	General Part B, Appendix E	• Add references to future CWMF facilities and operations in text and figures • Add CAMU and Chemical Waste Landfill to list of Units included in site-wide contingency plan	• Provide information about CWMF • Update list to reflect current status of Units in Part 5.
2	General Part B, Appendix F	Add references to future CWMF facilities and operations in text and figures	Provide information.

Attachment C (Continued)

Summary of Corrections, Clarifications, and Updates

Part	Section	Description of Revisions	Reason for Revisions
2	Module 1, Sections 1.0, 6.0, and 7.0	Revise capacities for HWMF waste management areas.	Correct errors in reported capacities.
2	Module II, Sections 1.0, 2.0, 6.0, 8.0, and 9.0, and Figure 9	Various minor revisions to description of the TTF and operations.	Update description of unit to incorporate data from current operations and reflect recent changes to operating practices.
2	Module II, Section 9.0	Revise information about neighboring facilities, and risk assessment.	Reflect changes in neighboring facilities, update information about prevailing winds, incorporate updated soil screening level from NMED into risk assessment.
2	Module II, Table 5	Revise quantities of acetone and water, revise footnotes.	Correct errors and provide additional data from current operations.
2	Module III, all sections and figures	• Add description of planned physical modifications to Buildings 6920, 6921, 6925, and 6926 • Add description of planned additional modular buildings • Add description of future operations in the CWMF facilities (modified and new buildings) • Add inspection schedules for future CWMF facilities and operations • Add emergency equipment and locations for future CWMF facilities and operations • Add building-specific closure information for future CWMF facilities. • Add description of future treatment operations in the CWMF. • Add new figures for renovated CWMF Buildings 6920 and 6926 operations and closure • Add new figures for evacuation routes • Revise most figures to show planned CWMF features, revise titles, and renumber figures as needed.	Add information for future CWMF facilities and operations.
2	Module III, Table 8	Add an emergency coordinator.	Reflect personnel changes.
2	Module III, Section 8.1	Provide additional description of macroencapsulation treatment methods.	Reflect that DOE/Sandia will utilize commercially available containers of inert resin to perform macroencapsulation.

Attachment C (Concluded)

Summary of Corrections, Clarifications, and Updates

Part	Section	Description of Revisions	Reason for Revisions
2	Module V, Sections 1.0, 6.0, 7.0, and 8.0	Revise description of designated waste management areas and reported capacities.	Clarify descriptions of facilities and operations, correct errors in reported capacities.
2	Module V, Section 8.1	Provide additional description of macroencapsulation treatment methods.	Reflect that DOE/Sandia will utilize commercially available containers of inert resin to perform macroencapsulation.
2	Module V, Figure 6	Revise to show actual loading/unloading area.	Correct error in earlier figure.
2	Module VI, all sections	Add references to future CWMF facilities and operations	Add relevant information for future CWMF facilities and operations, reflecting that future CWMF personnel will operate the MSB in the same manner that current RMWMF personnel operate the MSB.
2	Module VI, Table 3	Add an emergency coordinator.	Reflect personnel changes.

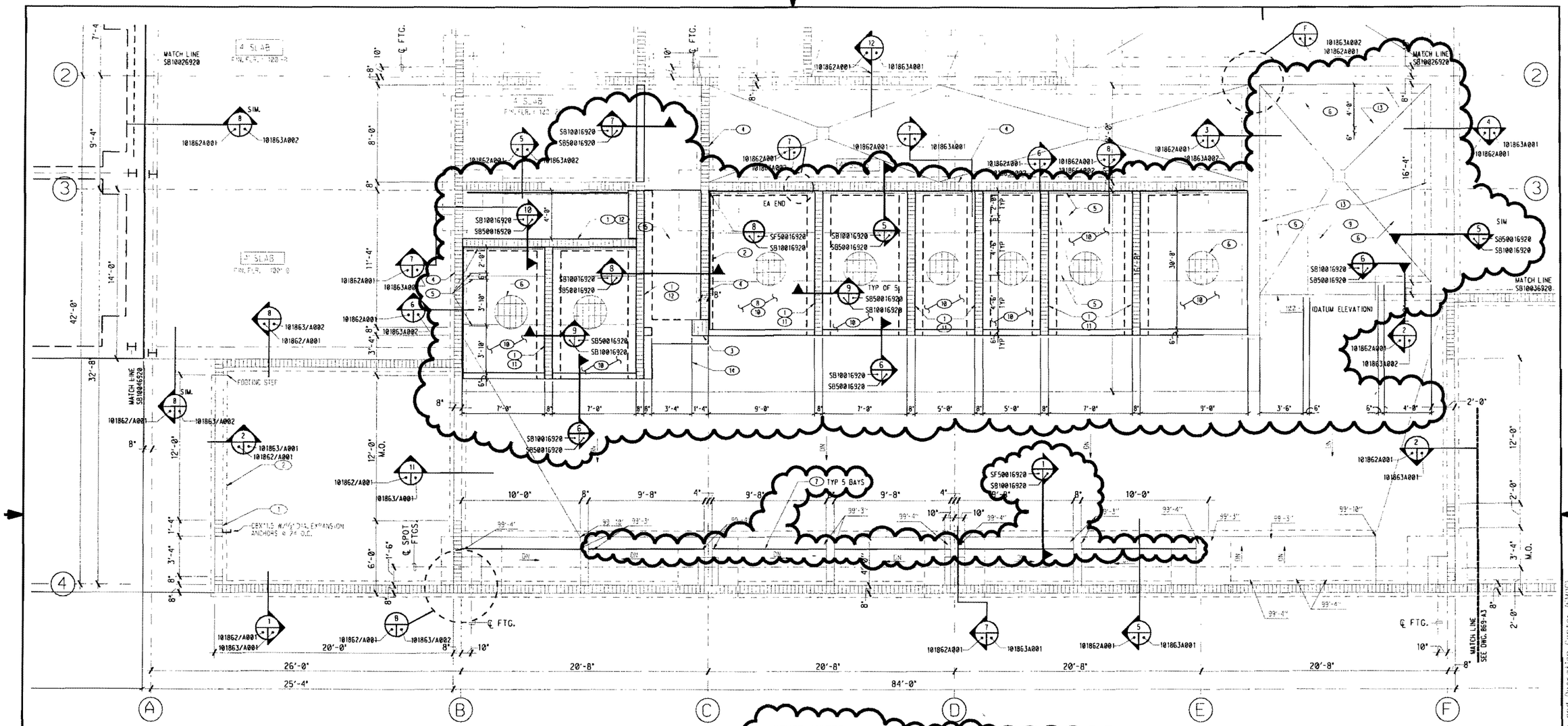
Attachment D

Engineering Drawings, Secondary Containment at Renovated Buildings 6920 (South Bay) and 6926 Future Consolidated Waste Management Facility

Part 2, Module III Comprehensive Part B Permit Request

Note: This attachment includes drawings showing the layout and details of secondary containment in the renovated south bay of Building 6920 and renovated Building 6926:

Drawing No.	Subject
SB10016920	Foundation plan of renovated south bay of Building 6920, showing new storage bays and enclosed room with secondary containment
SB50016920	Foundation details and sections, Building 6920 south bay secondary containment
6926S-1101	Foundation plan of renovated Building 6926, showing new storage bays with secondary containment
6926S-5001	Foundation details and sections , Building 6926 secondary containment



Foundation Plan - South

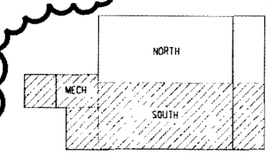
1/4"=1'-0"

GENERAL NOTES:

1. SLAB TO BE 7" CONCRETE SLAB W/ #4 @ 16" O.C. EACH WAY UNLESS NOTED OTHERWISE
2. 4" CONCRETE SLAB REINFORCED W/ 6 X 6 - W1.4 X W1.4 W.W.F.
3. FINISH SLAB ELEVATION 100'-0" W.S.L.E. 5410.00'
4. SEE DRAWING 101872A001 FOR LOCATION OF MASONRY CONTROL JOINTS AND SEE 101862A002 (0) 101863A002
5. TOP OF GRATE ELEV. = 99'-11" UNLESS NOTED OTHERWISE.
6. FINISH FLOOR ELEV.=100'-0" @ ROOM PERIMETER IN ROOMS THAT HAVE SLOPING FLOOR SLAB, UNLESS NOTED OTHERWISE.
7. SHADED WALLS TO BE GROUTED SOLID.
8. 5" CONCRETE SLAB REINFORCED W/ #4 @ 16" O.C. EACH WAY
9. DIMENSIONS ARE TO GRID LINE OR FACE OF WALL UNLESS NOTED.
10. ELEVATIONS REFERENCE TO EXISTING BUILDING FINISH FLOOR=100'-0" REFERENCE ELEVATION.
11. SEE SHEET SK-1 FOR GENERAL NOTES.

KEYED NOTES:

1. 8" CMU WALL W/#5 @ 32" O.C. VERT. & STD. TRUSS TYPE REINF. @ 16" O.C. HORIZ. GROUT ALL REINF. CELLS SOLID.
2. HSS 4x4x1/4 WALL SUPPORT AT 8' ABOVE FIN FLOOR SEE 10/SF50016920.
3. 16"x16" CMU PILASTER 9'-4" HIGH SEE 9/SF50016920.
4. EXIST CMU WALL
5. HSS 4x3x3/16 TYP 9 BAYS
6. STEEL GRATING W/ 1/4" x 3/16 BEARING BARS @ 1 3/16" O.C., CROSS BARS AT 4", TYP OF 8 BAYS.
7. HSS 3x3x1/4
8. 6" CONCRETE SLAB W/ #4 @ 16" O.C. E.W. TYP
9. REMOVE WALL BELOW FLOOR AND GROUT SIMILAR TO 7/SB50016920
10. PROVIDE SHELVING IN BAY SEE 10/SF50036920.
11. T/O WALL =107'-4"
12. T/O WALL =109'-4"
13. HSS4x3x3/16
14. REPLACE EXISTING RAMP SEE 13/SB50016920
15. 8"x8" CMU LINTEL W/ 2-#5 IN HORIZ BOND BEAM EA. ABOVE



KEY PLAN
BLDG. 6920

P.O. PROJECT NO.	REV	DATE	DESCRIPTION	DWN	CKD	APP
	E	9/04	CMUF DFP			
140603 AW3418	C	11/94	FOUNDATION OF BLDG 6920 REMOVE			
46-847	B	5/93	FOUNDATION APPROACHMENTS			
332-91-027	A	1/91	INTERFACE CONCEPTS			
	D	2/90	ASBUILT			

U.S. DEPARTMENT OF ENERGY
NNSA/SANDIA SITE OFFICE — ALBUQUERQUE, NEW MEXICO

SANDIA NATIONAL LABORATORIES

FOUNDATION PLAN - SOUTH

RADIOACTIVE AND MIXED WASTE MANAGEMENT FACILITY

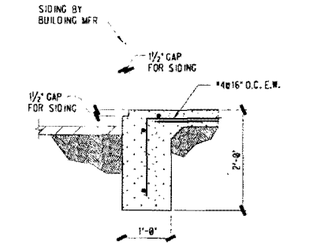
ARCHITECTURAL — BLDG. 6920

P.O. / PROJECT NO. / DRAWN BY / CHECKED BY / SNL ENGR / DATE

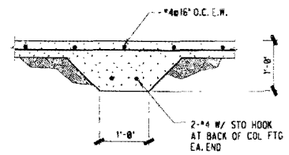
SIZE D — DRAWING NO. SB10016920 — SEQ.

OLD FILENAME:
FILENAME:

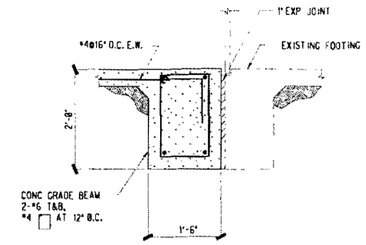
Sandia National Laboratories Facilities Management and Operation Center (FMOC). This drawing is protected by copyright law and may not be reproduced or distributed without written permission and authorization of FMOC.



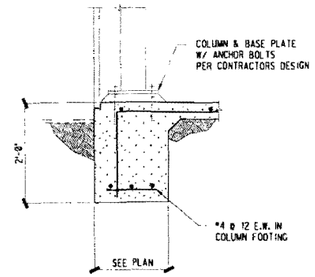
1 SB50016920 SB10046920 SCALE: ¾"=1'-0"



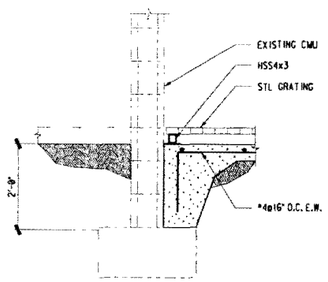
2 SB50016920 SB10046920 SCALE: ¾"=1'-0"



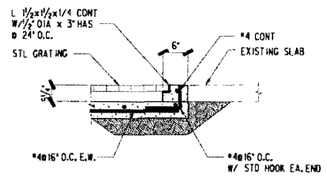
3 SB50016920 SB10046920 SCALE: ¾"=1'-0"



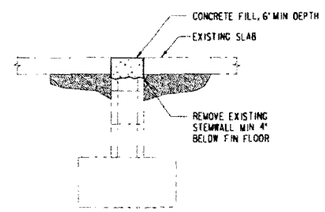
4 SB50016920 SB10046920 SCALE: ¾"=1'-0"



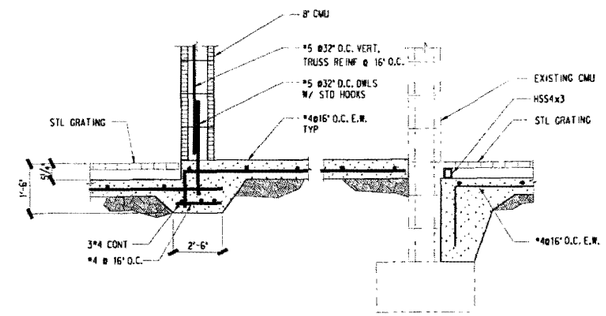
5 SB50016920 SB10016920 SCALE: ¾"=1'-0"



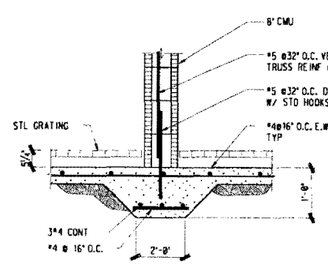
6 SB50016920 SB10016920 SCALE: ¾"=1'-0"



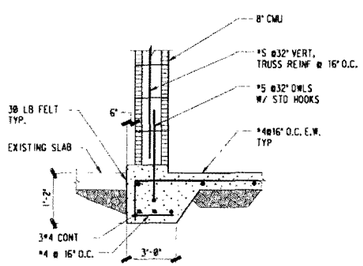
7 SB50016920 SB10016920 SCALE: ¾"=1'-0"



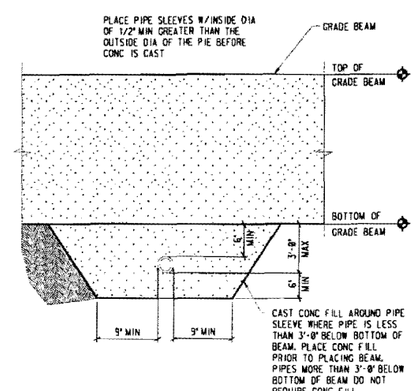
8 SB50016920 SB10016920 SCALE: ¾"=1'-0"



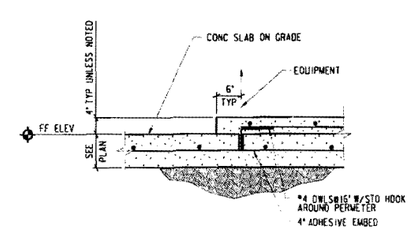
9 SB50016920 SB10016920 SCALE: NONE



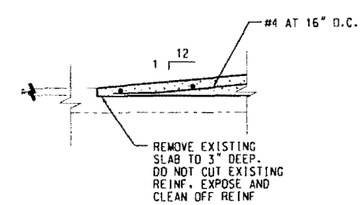
10 SB50016920 SB10016920 SCALE: ¾"=1'-0"



11 TYP PIPE AT GRADE BEAM SB50016920 SK-1 SCALE: ¾"=1'-0"



12 TYP HOUSEKEEPING PAD ON GRADE SB50016920 SK-1 SCALE: ¾"=1'-0"



13 SB50016920 SB10016920, SB10026920 SCALE:

P.O. PROJECT NO.	REV	DATE	DESCRIPTION	DWN	CKD	APP

U.S. DEPARTMENT OF ENERGY
NNSA/SANDIA SITE OFFICE — ALBUQUERQUE, NEW MEXICO

SANDIA NATIONAL LABORATORIES

FOUNDATION DETAILS

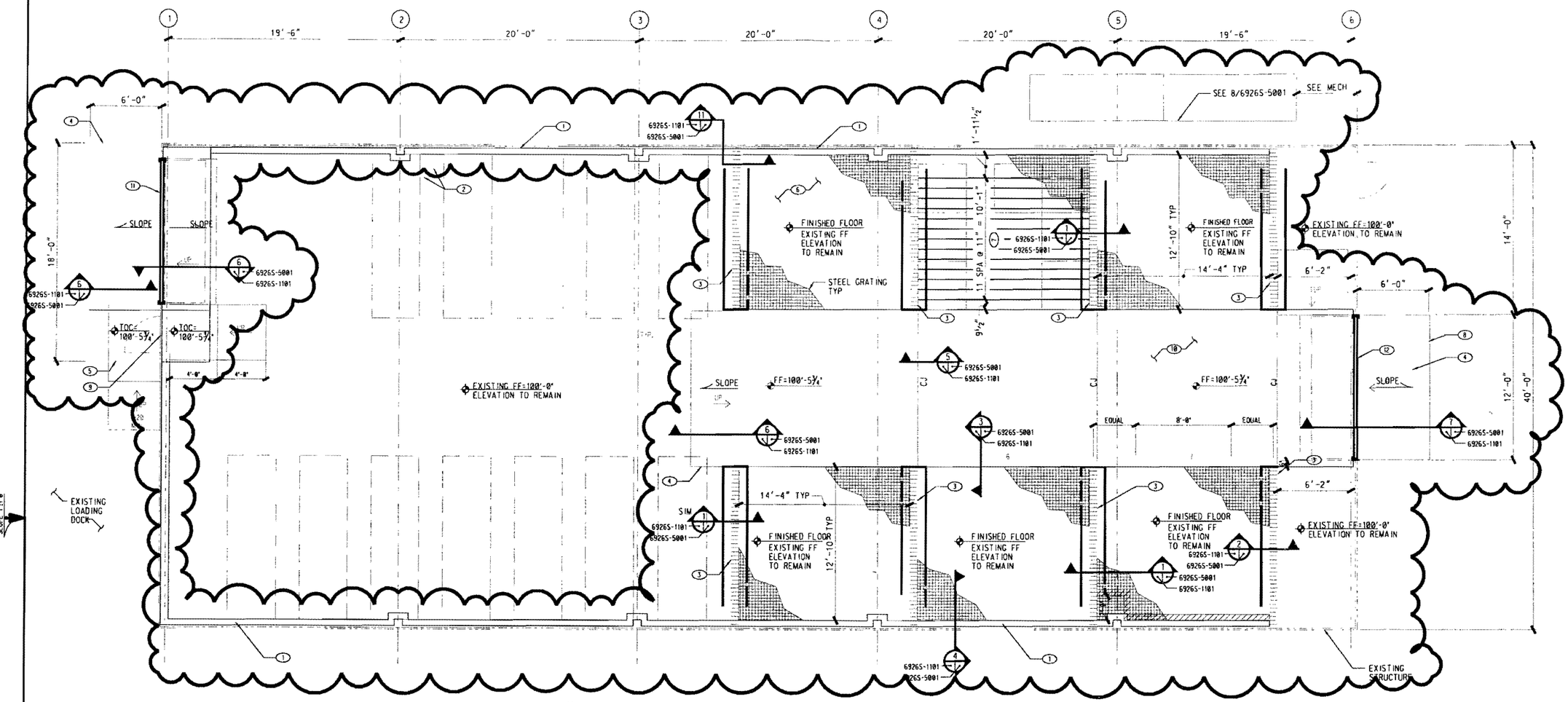
CWMF GPP

P.O.	
PROJECT NO.	76088
DRAWN BY	J MACCORNACK
CHECKED BY	B GRIFFITH
SNL ENGR	SNL APPROVAL
DATE	6/30/04
SIZE	D+
DRAWING NO	SB50016920
SEQ.	

DISCP: S SUB-DISCP: BUILDING 6920

OLD FILENAME: OLD FILENAME
FILENAME: SB50016920.DGN

"Reproduced from Sandia National Laboratories Engineering and Observation Center (EMOC). Any other reproduction or distribution is not permitted without the express written permission of EMOC."



Foundation Framing Plan

SCALE: 1/4"=1'-0"

KEYED NOTES

1. 6"x5¾" CONC CURB
2. EXISTING CONC FOOTING
3. 8" CMU WALL W/ CONC FOOTING. REMOVE EXISTING CONC SLAB AT FOOTING. DO NOT REMOVE EXISTING FOOTINGS.
4. CONCRETE RAMP
5. CONCRETE LANDING
6. STEEL GRATING 1¾"x1/4" BEARING BARS AT 1 3/16" CROSS BARS AT 4" TYP IN 6 BAYS
7. HSS 4x3x3/16 SLEEPERS AT 11" O.C. MAX, TYP IN 6 BAYS
8. MATCH EXISTING T/O PAVEMENT
9. RAISE EXISTING DOOR AND GIRT OVER DOOR CONNECT TO MATCH EXISTING
10. 5¾" CONCRETE TOPPING SLAB W/#4 @ 16" O.C. E.W.
11. EXISTING OVERHEAD DOOR
12. RELOCATED OVERHEAD DOOR

GENERAL NOTES

1. DIMENSIONS ARE TO GRID LINE OR FACE OF WALL UNLESS NOTED.
2. ELEVATIONS REFERENCE TO EXISTING BUILDING FINISH FLOOR=100'-0" REFERENCE ELEVATION.
3. SEE SHEET SK-1 FOR GENERAL NOTES.

P.O. PROJECT NO.	REV	DATE	DESCRIPTION	DWN	CKD	APP

U.S. DEPARTMENT OF ENERGY

NNSA/SANDIA SITE OFFICE — ALBUQUERQUE, NEW MEXICO

SANDIA NATIONAL LABORATORIES

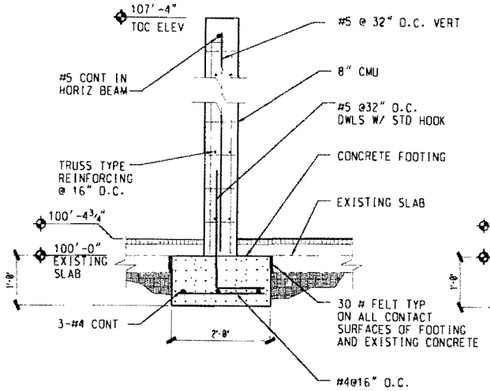
P.O.	
PROJECT NO.	76088
DRAWN BY	
CHECKED BY	
SNL ENGR	
DATE	

OLD FILENAME:

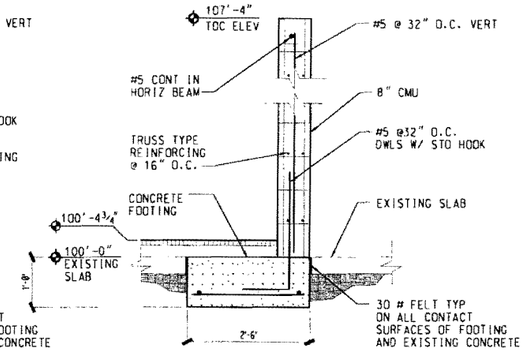
FILENAME:

SIZE D+ — DRAWING NO — SEQ.

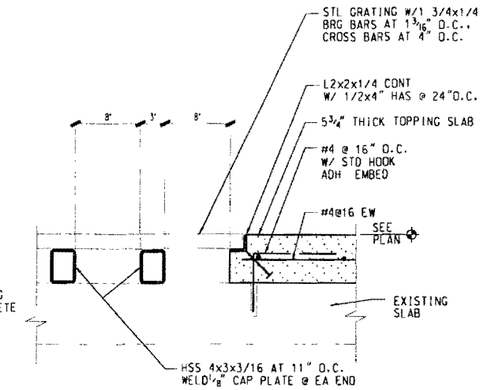
This drawing is the property of the Sandia National Laboratories and Operation Charter (MOC). Any reproduction and authorization of MOC.



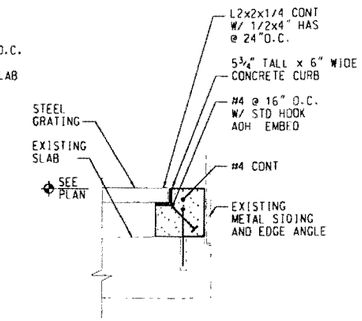
1 6926S-5001 6926S-1101 SCALE: ¼"=1'-0"



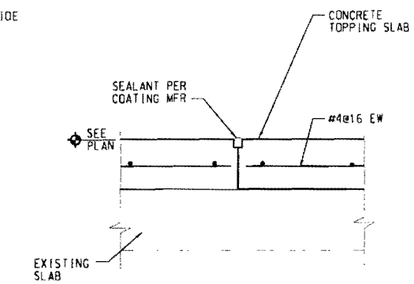
2 6926S-5001 6926S-1101 SCALE: ¼"=1'-0"



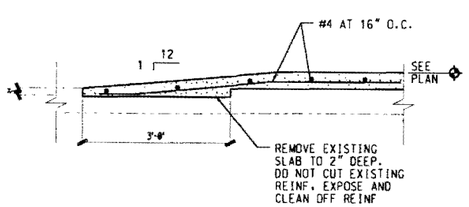
3 6926S-5001 6926S-1101 SCALE: NONE



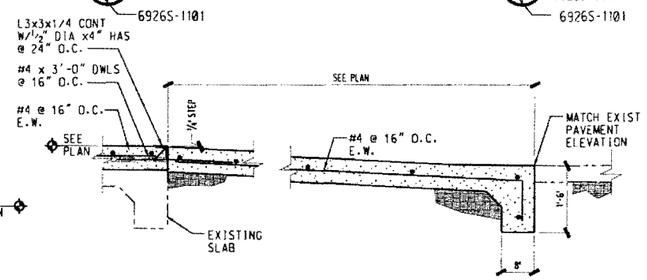
4 6926S-5001 6926S-1101 SCALE: NONE



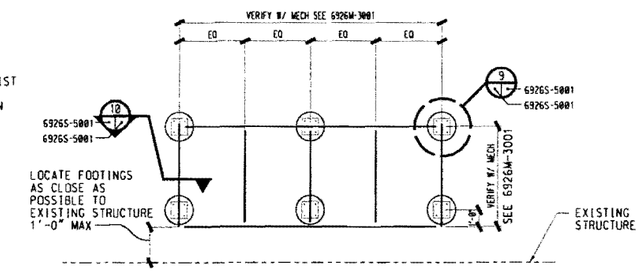
5 6926S-5001 6926S-1101 SCALE:



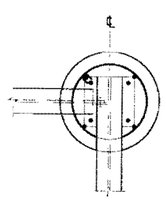
6 6926S-5001 6926S-1101 SCALE:



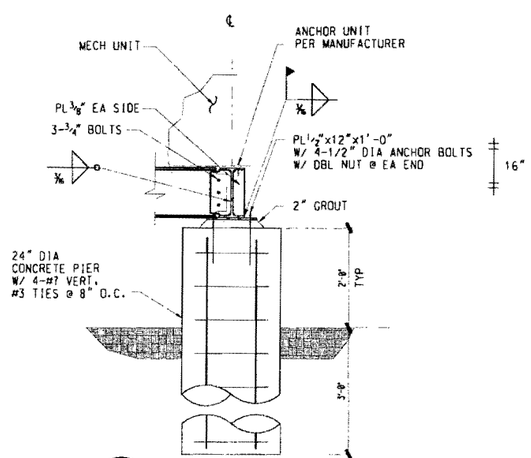
7 6926S-5001 6926S-1101 SCALE:



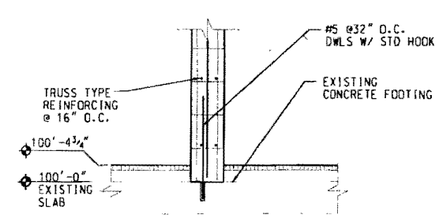
8 6926S-5001 6926S-1101 SCALE:



9 6926S-5001 6929S-5001 SCALE:



10 6926S-5001 6926S-5001 SCALE: ¼"=1'-0"



11 6926S-5001 6926S-1101 SCALE: ¼"=1'-0"

P.O. PROJECT NO.	REV	DATE	DESCRIPTION	DWN	CKD	APP
	A					

U.S. DEPARTMENT OF ENERGY

NNSA/SANDIA SITE OFFICE — ALBUQUERQUE, NEW MEXICO

SANDIA NATIONAL LABORATORIES

MISC. DETAILS

CWMF
MAJOR RENOVATION

DISCP: S SUB-DISCP: BUILDING 6926

P.O. PROJECT NO.	76088
DRAWN BY	J MACCORMACK
CHECKED BY	B GRIFFITH
SNL ENGR	SNL APPROVAL
DATE	9/30/04

CHAVEZ-GRIEVES COMPUTING ENGINEERS INC.

SIZE D+ DRAWING NO 6926S-5001 SEQ.

OLD FILENAME: OLD FILENAME
FILENAME: 6926S-5001.DGN

Reproduction prohibited without permission. Facilities Management and Operations Center (FMOC). The exception of FMOC.

Attachment E

Redline-Strikeout Copy of Revised Pages
Text and Figures

Task # HWB-SNL-02-002
Third NOD

Overview

PART 1
General Part A

PART 2
General Part B, Appendices A through F
Modules I - VI

Note: This attachment includes only text and figures with changes.

SNL
Revised Present
App.

Sandia National Laboratories/New Mexico Comprehensive Part B Permit Request – Volume I

November 2004
Redline/Strikeout

Volume I
Table of Contents

Overview

1.0 Background
2.0 Comprehensive Part B Permit Request
3.0 Pre-application Public Notice and Meeting

Part 1—General Part A Permit Renewal Request/Application

List of Figures
List of Photographs
Hazardous Waste Permit Application – Part A

Appendices

A Active Environmental Permits
B Location-specific Process Code Listings, Design Capacities, Figures, and Photographs

Part 2—General Part B Permit Renewal Request/Application

Table of Contents
1.0 General Site Operations
2.0 Site Description
3.0 Waste Analysis Plan
4.0 Inspection Plan
5.0 Personnel Training Plan
6.0 Emergency Response and Contingency Plan
7.0 Closure Plan
8.0 Treatment
9.0 Recordkeeping
10.0 Other Federal Laws
11.0 Corrective Action
12.0 Certification
13.0 References

Appendices

A Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

B Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

C Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Table of Contents (Continued)

Appendices (Continued)

D Site-Wide Personnel Training Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

E Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

F Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Modules

I	HWMF	Hazardous Waste Management Facility
II	TTF	Thermal Treatment Facility
III	RMWMF/CWMF	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility
IV	Reserved	
V	AHCF	Auxiliary Hot Cell Facility
VI	MSB	Manzano Storage Bunkers

OVERVIEW

1.0 BACKGROUND

Sandia National Laboratories (SNL) is a multi-purpose engineering and science laboratory owned by the U.S. Department of Energy (DOE) and co-operated by Sandia Corporation (Sandia), a subsidiary of Lockheed Martin, and the DOE. Sandia designs non-nuclear components for the nation's nuclear weapons, performs a wide variety of energy research and development projects, and works on assignments that respond to national security threats. Sandia National Laboratories/New Mexico (SNL/NM) is located on Kirtland Air Force Base (KAFB) southeast of Albuquerque, New Mexico. SNL/NM consists of five technical areas (TAs) and several remote testing areas situated in the eastern half of the 80-square-mile KAFB.

Sandia generates wastes that are regulated under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code (NMAC) Title 20, Chapter 4. In this Part B permit request, these wastes are referred to as RCRA-regulated wastes (i.e., wastes that meet the regulatory definition of hazardous or mixed wastes). RCRA-regulated wastes are generated during SNL/NM operations and ongoing corrective actions for solid waste management units (SWMUs). The corrective actions are conducted under the SNL/NM Environmental Restoration (ER) Project.

Since November 19, 1980, Sandia/DOE have managed RCRA-regulated wastes at SNL/NM under the applicable requirements of Title 40 of the Code of Federal Regulations, Parts 260-270, and with the requirements of NMAC Title 20, Chapter 4, as they became effective. Sandia/DOE operations include:

- **Chemical Waste Landfill (CWL).** Sandia/DOE operated the CWL in the southeastern corner of SNL/NM TA-III for disposal of RCRA-regulated wastes under interim status until 1985. Sandia/DOE are closing the landfill under interim status according to a closure plan approved by the New Mexico Environment Department (NMED). Two voluntary corrective measures (VCM) have been performed at the CWL: a vapor extraction VCM, and a landfill excavation VCM. The CWL is a regulated unit under RCRA. Groundwater assessment and monitoring information for the CWL is addressed in this comprehensive Part B permit request. Sandia/DOE will prepare corrective measures documentation as required by the closure plan. Sandia/DOE will also prepare a post-closure care permit application in spring of 2005, as a supplement to this Part B application.

- **Hazardous Waste Management Facility (HWMF).** The HWMF consists of several buildings within a fenced area located south of SNL/NM TA-I. The HWMF is used for storage and packaging of RCRA-regulated wastes. The wastes are transported to off-site RCRA-permitted facilities for treatment, storage, and/or disposal. These wastes are generated during SNL/NM operations and corrective action activities. The Part B hazardous waste operating permit for the HWMF was issued in August 1992 and expired on August 6, 2002. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for the renewal of the HWMF operating permit. Sandia/DOE have revised ~~most of~~ the request in response to NMED's comments dated June 25, 2004. ~~October 10, 2002~~. The complete updated request for renewal of the HWMF operating permit is included in this November 2004~~April 2003~~ submittal.

- **Thermal Treatment Facility (TTF).** The TTF consists of a burn cage with ancillary equipment located in a fenced area south of Building 6715 in the northern part of SNL/NM TA-III. The TTF is used for thermal treatment of explosive wastes generated by SNL/NM operations. RCRA-regulated treatment residues~~als~~ (ash) are transported to off-site permitted facilities for treatment, storage, and/or disposal. The Part B hazardous waste operating permit for the TTF was issued on November 4, 1994. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for the renewal of the TTF operating permit. Sandia/DOE have revised ~~most of~~ the request in response to changes in ~~planned~~ TTF operations and NMED's comments dated June 25, 2004~~October 10, 2002~~. The complete updated request for renewal of the TTF operating permit is included in this November 2004~~April 2003~~ submittal.

- **Radioactive and Mixed Waste Management Facility (RMWMF) / Consolidated Waste Management Facility (CWMF).** The RMWMF consists of several buildings within a fenced area located at the southeastern corner of SNL TA-III, west of the CWL. The RMWMF is used for storage, treatment, and packaging of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. RCRA-regulated wastes and treated residues are transported to off-site permitted facilities for treatment, storage, and/or disposal. The RMWMF is operated under interim status. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a Part B permit application for operation of the RMWMF, which superseded the application submitted to the NMED in December 1996. Sandia/DOE have revised ~~most of~~ the application in response to NMED's comments dated June 25, 2004~~October 10, 2002~~.

  Sandia/DOE plan to make physical modifications to the RMWMF in stages during the next three years to increase capacity. Existing RMWMF waste management operations will be maintained during that time. The modified facility will be called the CWMF. Sandia/DOE will continue the same general operations at the CWMF (storage, repackaging, and treatment of RCRA-regulated wastes) that are conducted at the existing RMWMF.

  The application for operation of the RMWMF in this comprehensive Part B permit request has been further modified to reflect the future CWMF and the planned modifications. The application for the existing RMWMF and future CWMF is included in this November 2004 submittal.

- **High Bay Waste Storage Facility (HBWSF).** The HBWSF is an area within Building 6596 in SNL/NM TA-V. The HBWSF was~~is~~ used for storage and packaging of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. RCRA-regulated wastes were~~are~~ transported to off-site permitted facilities for treatment, storage, and/or disposal. The HBWSF is operated under interim status. The comprehensive Part B permit request submitted to NMED in February 2002 included a Part B permit application for operation of the HBWSF, which superseded the application submitted to the NMED in December 1996. ~~In February 2003,~~ Sandia/DOE ~~decided to~~ withdre~~a~~w the Part B permit application for the HBWSF in April 2003 and most recently submitted a closure plan to NMED in April 2004. Sandia/DOE continue to operate the Unit under interim status and will close it following NMED ~~submit a revised~~ approval of the closure plan ~~to NMED for approval during 2003~~.

- **Auxiliary Hot Cell Facility (AHCF).** The AHCF is located in Building 6597 in SNL/NM TA-V. The AHCF will be used for treatment, packaging, and storage of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included an application for operation of the AHCF. Sandia/DOE have revised most of the application in response to NMED's comments dated June 25, 2004October 10, 2002. The complete updated application for operation of the AHCF is included in this November 2004April 2003 submittal.

- **Manzano Storage Bunkers (MSB).** The MSB are a set of Units used for storage of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. The seven bunkers within the MSB are located within the former Manzano Base in the eastern part of KAFB. RCRA-regulated wastes are typically transported to other SNL/NM Units for storage and/or treatment before being transported to permitted off-site facilities for further treatment, storage, and/or disposal. The MSB are operated under interim status. The comprehensive Part B permit request submitted to NMED in February 2002 included a Part B permit application for operation of the MSB, which superseded the application submitted to the NMED in December 1996. Sandia/DOE have revised much of the application in response to NMED's comments dated June 25, 2004October 10, 2002. The complete updated application for operation of the remaining five bunkers in the MSB is included in this November 2004April 2003 submittal.

  Two of the bunkers provided extra capacity that was not needed, and they were never used for storage of RCRA-regulated wastes under interim status. In February 2003, Sandia/DOE decided to withdreaw the Part B permit application for those two of the bunkers in April 2003. In December 2003, Sandia/DOE submitted a request to NMED for closure of the two bunkers. Sandia/DOE continue to operate the two Units under interim status until NMED approves the and will submit a revised closure requestplan to NMED for approval during 2003.

- **Corrective action for SWMUs at SNL/NM.** Sandia/DOE have identified numerous SWMUs throughout SNL/NM, and, until issuance of a Compliance Order by the NMED in April 2004, are conductingconducted corrective action under Module IV of the Part B Permit issued by the U.S. Environmental Protection Agency (EPA) under the 1984 Hazardous and Solid Waste Amendments to RCRA. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included the required information for SWMUs and Areas of Concern (AOCs) that qualify to be on the permit as determined by NMED. Sandia/DOE updated the information in response to NMED's comments and included the updated information in the dated October 10, 2002. The complete set of updated information is included in this April 2003 submittal.

  Corrective action activities are now conducted under the terms of the Compliance Order on Consent between DOE, Sandia, and NMED, dated April 29, 2004.

- **Corrective Action Management Unit (CAMU).** The CAMU was used for staging, treatment, and containment of remediation wastes generated during ER Project activities. The CAMU included staging areas for bulk and containerized waste, a treatment pad, and a containment cell. The CAMU is located at SNL/NM SWMU 107 in the southeastern corner of SNL/NM TA-III, northwest of the CWL and the RMWMF. The 5-year authorization to operate the CAMU under Permit Module IV was issued by EPA on September 25, 1997, and expired on September 20, 2002. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for renewal of the operating authorizations associated with the CAMU. Sandia/DOE completed treatment and containment operations at the CAMU in early 2003, and ~~are currently closing~~ certified closure of the Unit on October 15, 2003.~~in accordance with an approved closure plan. Sandia/DOE~~ The CAMU consisted of the following: ~~will prepare a post-closure care application during 2003 and submit it to NMED under separate cover.~~

- CAMU Temporary Unit (TU) for soil stabilization operations. The temporary unit was one of two treatment units used to treat remediation wastes at the CAMU. Sandia/DOE closed the TU in early 2003, and withdrew it from the comprehensive Part B permit request in August 2003. ~~The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a revised and updated request for authorization to operate the TU.~~

  ~~Sandia/DOE completed operations at the TU in early 2003, and are currently closing the Unit in accordance with an approved closure plan. When closure activities are complete, Sandia/DOE will withdraw the request for authorization of the TU.~~

- CAMU Low Temperature Thermal Desorption Unit (LTTD) Unit. The LTTD unit was the second ~~one~~ of two treatment units used to treat remediation wastes at the CAMU. Sandia/DOE closed the LTTD in early 2003, and withdrew it from the comprehensive Part B permit request in May 2003. ~~The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for continuance of a temporary authorization issued by NMED on August 3, 1998 for operation of the LTTD unit. In NMED's initial response dated March 22, 2002, the NMED determined that the temporary authorization was no longer valid and that a separate permit application for LTTD operation was required. Based on that direction, DOE and Sandia transmitted a newly prepared Class 2 permit modification request for operation of the LTTD unit on June 11, 2002. On September 24, 2002, the NMED transmitted a final approval, with conditions. LTTD operations are now complete and the unit is undergoing closure as approved by the NMED. When closure activities are complete, Sandia/DOE will withdraw the request for authorization of the LTTD unit.~~

- CAMU Containment Cell. The containment cell holds the remediation wastes. Sandia/DOE constructed a cover on the cell and completed closure in 2003. The CAMU is now maintained under the post-closure care conditions of the CAMU permit application. A comprehensive, stand-alone permit application for CAMU post-closure care was transmitted to the NMED on July 3, 2003. When approved, the post-closure care permit application will be incorporated into the SNL/NM Part B permit application.

2.0 COMPREHENSIVE PART B PERMIT REQUEST

The operations described in Section 1.0 have been addressed separately in past Sandia/DOE permitting activities. Each unit is included in this comprehensive Part B permit request, as requested by the NMED. The request is organized into five parts.

2.1 Part 1

Part 1 consists of this updated introduction; a summary of Sandia/DOE's public notice activities associated with the original permit request submitted in February 2002, and an updated general RCRA Part A permit request. The RCRA Part A includes a list of RCRA-regulated wastes managed at SNL/NM, types of management activities, capacities, waste volumes, and photographs of each unit.

2.2 Part 2

Part 2 consists of the updated Part B permit renewal request/application for the nine RCRA-regulated waste management units associated with ongoing operations at SNL/NM. Sandia/DOE have ~~revised~~ parts of ~~most of~~ the ~~February 2002~~ request in response to NMED's comments dated June 25, 2004~~October 10, 2002~~. Part 2 includes complete applications and renewal requests for the HWMF, TTF, existing RMWMF/future CWMF, AHCF, and five MSB.

In order to minimize redundant information, the permit request is presented in the following format:

- A "general" Part B that serves as an umbrella document. The general Part B contains general and site-wide SNL/NM information applicable to all nine of the waste management units, addressing the general information requirements of NMAC Title 20, Chapter 4. The general Part B consists of main text and six appendices.
- Five "modules" – one for the set of five bunkers in the MSB, and one for each of the other units listed above. Each module contains unit-specific information addressing the requirements of NMAC Title 20, Chapter 4. For clarity and consistency, the information in each unit-specific module is arranged in the same order as the information in the General Part B.

The exact order of the information is shown in the table of contents at the beginning of the General Part B and in the tables of contents for each module ~~and section~~. The General Part B includes a table of regulatory references and the location of the corresponding information in the permit renewal request/application.

2.3 Part 3

Part 3 consists of a revised discussion of the groundwater information for regulated units (the CWL is the only such unit at SNL/NM). The discussion was ~~has been~~ revised in response to NMED comments dated September 9, 2003~~October 10, 2002~~.

2.4 Part 4

Part 4 consists of updated information about SWMUs at SNL/NM. It includes three sections:

- An introduction, including a description of the Sandia/DOE process for identifying SWMUs;
- A summary of the required information for each SWMU and AOC that qualifies to be on the permit as determined by NMED; and
- A summary of supplemental information about Canyons Groundwater, Technical Area III/V Groundwater, and Tijeras Arroyo Groundwater (TAG).

2.5 Part 5

Part 5 has not been updated at this time (November 2004~~April 2003~~). It consists of the requests for the renewal ~~or continuance~~ of authorization to operate the Corrective Action Management Unit (CAMU), its staging areas for bulk and containerized waste, the treatment pad, and the containment cell, ~~and two associated treatment units,~~ that was~~were~~ submitted to NMED in February 2002. Part 5 will consist of the post-closure care plan for the CAMU containment cell when the plan is approved by the NMED. In addition, this Part will be amended to contain the post-closure care permit application for the CWL, expected in spring of 2005.

~~- Authorization to operate the CAMU and its elements: staging areas for bulk and containerized waste, the treatment pad, and the containment cell.~~

~~- Authorization to operate the Temporary Unit (TU) for soil stabilization.~~

~~- Authorization to operate the Low-Temperature Thermal Desorption (LTTD) Unit.~~

~~The CAMU and associated treatment units, the TU and the LTTD unit, have completed operations and are undergoing closure in accordance with closure plans approved by NMED. A post-closure care application for the CAMU is being prepared. Sandia/DOE will complete the CAMU post-closure care application in 2003 and will request that this submittal be substituted in the comprehensive Part B permit request as the CAMU permit application. For the CAMU treatment units, a request to withdraw the LTTD unit and TU from the comprehensive Part B permit request will be transmitted following completion of the closure process.~~

Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application

Revision 7~~6~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PHOTOGRAPHS

RCRA SUBTITLE C SITE IDENTIFICATION FORM

HAZARDOUS WASTE PERMIT INFORMATION FORM

APPENDIX A ACTIVE ENVIRONMENTAL PERMITS

APPENDIX B LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, ANNUAL QUANTITIES, FIGURES, AND PHOTOGRAPHS

LIST OF FIGURES

Figure No.	Title
B-1	Topographic Map
B-2	Sandia National Laboratories/New Mexico, Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units
B-3	Hazardous Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-4	Hazardous Waste Storage Building (Building 958), Floor Plan
B-5	Hazardous Waste Packaging Building (Building 959), Floor Plan
B-6	Thermal Treatment Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
B-7	Thermal Treatment Facility (TTF)-Plan View
B-8	Location of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility ~~(RMWMF)~~ in Technical Area III
B-9	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-10	Radioactive and Mixed Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-11	Consolidated Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-12~~11~~	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-13~~12~~	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-14	Consolidated Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-15~~13~~	Location of the High Bay Waste Storage Facility (HBWSF) in Technical Area (TA) V
B-16~~14~~	High Bay Waste Storage Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
B-17~~15~~	Location of the Auxiliary Hot Cell Facility (AHCF) in Technical Area (TA) V
B-18~~16~~	Auxiliary Hot Cell Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas

LIST OF FIGURES (Concluded)

Figure No.	Title
B-19~~17~~	Location of the Manzano Storage Bunkers at Manzano Base
B-20~~18~~	Manzano Storage Bunkers, Type B, Bunkers 37034 and 37063
B-21~~19~~	Manzano Storage Bunkers, Type C, Bunkers 37078 and 37118
B-22~~20~~	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, and 37057

LIST OF PHOTOGRAPHS

Photograph Title

Hazardous Waste Management Facility, Buildings 958 and 959
Hazardous Waste Management Facility, Flammable Waste Storage Bay in Building 958
Hazardous Waste Management Facility, Waste Storage Bays in Building 959
Hazardous Waste Management Facility, Modular Storage Buildings (958B and 958C) for Reactive and Ignitable Wastes
Thermal Treatment Facility, Viewed from Roof of Building 6715
Thermal Treatment Facility, Rear View of Burn Cage from Top of Earthen Berm
Thermal Treatment Facility, Front View of Burn Pan (with Lid Down) Inside Burn Cage
Existing Radioactive and Mixed Waste Management Facility, East ~~Site~~ Side of Building 6920
Existing Radioactive and Mixed Waste Management Facility, West Side of Building 6920
Existing Radioactive and Mixed Waste Management Facility, Building 6920, South Bay~~Room 122~~
Existing Radioactive and Mixed Waste Management Facility, Building 6921
Existing Radioactive and Mixed Waste Management Facility, Building 6925
Existing Radioactive and Mixed Waste Management Facility, Building 6925, Interior
Existing Radioactive and Mixed Waste Management Facility, Building 6926
Existing Radioactive and Mixed Waste Management Facility, Modular Storage Buildings
High Bay Waste Storage Facility, South Side of Building 6596
High Bay Waste Storage Facility, West Side of Building 6596
Auxiliary Hot Cell Facility, North Side of Building 6597
Auxiliary Hot Cell Facility, Work Area North of Auxiliary Hot Cell
Auxiliary Hot Cell Facility, Fume Hood and Work Area North of Auxiliary Hot Cell
Auxiliary Hot Cell Facility, Operator Controls for Work Area and Hot Cell
Manzano Storage Bunkers, Type B, Front View of Bunker 37034
Manzano Storage Bunkers, Type B, Front View of Bunker 37063
Manzano Storage Bunkers, Type C, Front View of Bunker 37078
Manzano Storage Bunkers, Type C, Front View of Bunker 37118
Manzano Storage Bunkers, Type D, Front View of Bunker 37045
Manzano Storage Bunkers, Type D, Front View of Bunker 37055
Manzano Storage Bunkers, Type D, Front View of Bunker 37057

MAIL THE COMPLETED FORM TO: The Appropriate EPA Regional or State Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	
1. Reason for Submittal (See instructions on page 25) CHECK CORRECT BOX(ES)	**Reason for Submittal:** ☐ To provide initial notification (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities). ☐ To provide subsequent notification (to update site identification information). ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application. ☒ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # ~~5~~ 7) ☐ As a component of the Hazardous Waste Report.	
2. Site EPA ID Number (See instructions on page 26)	**EPA ID Number:** *NM5 890 110 518*	
Site Name (See instructions on page 26)	**Name:** *Sandia National Laboratories*	
4. Site Location Information (See instructions on page 26)	**Street Address:** *1515 Eubank Blvd. SE*	
	City, Town, or Village: *Albuquerque*	**State:** *NM*
	County Name: *Bernalillo*	**Zip Code:** *87123*
5. Site Location (See instructions on page 26)	**Site Land Type :** ☐ Private ☐ County ☐ District ☒ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
6. North American Industry Classification System (NAICS) Code(s) for the Site (See instructions on page 26)	**A.** *92811*	**B.** *54171*
	C.	**D.**
7. Site Mailing Address (See instructions on page 27)	**Street or P.O. Box:** *P.O. Box 5400, Sandia Site Office*	
	City, Town, or Village: *Albuquerque*	
	State: *NM*	
	Country: *USA*	**Zip Code:** *87185-5400*
8. Site Contact Person (See instructions on page 27)	**First Name:** ~~John~~David **MI:**	**Last Name:** ~~Gould~~Rast
	Phone Number: *(505)-845-53496089*	**Phone Number Extension:**
9. Legal Owner and Operator of the Site (See instructions on pages 27 and 28)	**A. Name of Site's Legal Owner:** *US Department of Energy*	**Date Became Owner (mm/dd/yyyy):** *11/01/1949*
	Owner Type: ☐ Private ☐ County ☐ District ☒ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
	B. Name of site's Operator: *Sandia Corporation*	**Date Became Operator (mm/dd/yyyy):** *11/01/1949*
	Operator Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☒ Other	

EPA ID No.	N	M	5	8	9	0	1	1	0	5	1	8

10. Type of Regulated Waste Activity (Mark 'X' in the appropriate boxes. See instructions on pages 28 to 32)

A. Hazardous Waste Activities

1. Generator of Hazardous Waste
(Choose only one of the following three categories)

[X] a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo) of non-acute hazardous waste; or

[ ] b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs/mo.) of non-acute hazardous waste; or

[ ] c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non acute hazardous waste

In addition, indicate other generator activities (check all that apply)

[ ] d. United States Importer of Hazardous Waste

[X] e. Mixed Waste (hazardous and radioactive) Generator

For Items 2 through 6, check all that apply:

[ ] **2. Transporter of Hazardous Waste**

[X] **3. Treater, Storer, or Disposer of Hazardous Waste (at your site)** Note: A hazardous waste permit is required for this activity.

[ ] **4. Recycler of Hazardous Waste (at your site)** Note: A hazardous waste permit may be required for this activity.

5. Exempt Boiler and/or Industrial Furnace

[ ] a. Small Quantity On-site Burner Exemption

[ ] b. Smelting, Melting and Refining Furnace Exemption

[ ] **6. Underground Injection Control**

B. Universal Waste Activities *None*

1. Large Quantity Handler Of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste generated and/or accumulated at your site. (check all boxes that apply):

		Generated	Accumulated
a.	Batteries	[ ]	[ ]
b.	Pesticides	[ ]	[ ]
c.	Thermostats	[ ]	[ ]
d.	Lamps	[ ]	[ ]
e.	Other (specify) _____	[ ]	[ ]
f.	Other (specify) _____	[ ]	[ ]
g.	Other (specify) _____	[ ]	[ ]

[ ] **2. Destination Facility for Universal Waste:**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities *None*

1. Used Oil Transporter – Indicate Type(s) of Activity(ies)

[ ] a. Transporter

[ ] b. Transfer Facility

2. Used Oil Processor and/or Re-refiner – Indicate Type(s) of Activity(ies)

[ ] a. Processor

[ ] b. Re-refiner

[ ] **3. Off-Specification Used Oil Burner**

4. Used Oil Fuel Marketer – Indicate Type(s) of Activity

[ ] a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

[ ] b. Marketer Who First Claims the Used Oil Meets the Specifications

11. Description of Hazardous Wastes (See instructions on page 33) *(n/a per instructions)*

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

EPA ID No.	N	M	5	8	9	0	1	1	0	5	1	8

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at you site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.

12. Comments (See instructions on Page 33)

None

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. **(See instructions on page 33)**

Signature of owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
	Owner: Patty Wagner~~Karen Boardman~~, Manager, US Department of Energy, Sandia Site Office	
	Co-Operator: Patty Wagner~~Karen Boardman~~, Manager, US Department of Energy, Sandia Site Office	
	Co-Operator: Les E. Shephard~~Donald H. Blanton~~, Vice President, Energy, Information, and Infrastucture Surety~~Human Resources & Protection Services~~, Sandia Corporation	

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact (See instructions on page 35)	**First Name:** *David*	**MI:**	**Last Name:** *Rast*
	Phone Number: *505-845-5349*		**Phone Number Extension:**
2. Facility Permit Contact Mailing Address (See instructions on page 35)	**Street Address:** *P.O. Box 5400, US Department of Energy, Sandia Site Office*		
	City, Town, or Village: *Albuquerque*		**State:** *NM*
	County Name: *USA*		**Zip Code:** *87185-5400*
3. Legal Owner Mailing Address and Telephone Number (See instructions on page 36)	**Street or P.O. Box:** *P.O. Box 5400*		
	City, Town, or Village: *Albuquerque*		
	State: *NM*		
	Country: *USA*	**Zip Code:** *87185-5400*	**Phone Number:** *505-845-4094*
4. Operator Mailing Address and Telephone Number (See instructions on page 36)	**Street or P.O. Box:** *P.O. Box 5800, Department 63~~1~~00*		
	City, Town, or Village: *Albuquerque*		
	State: *NM*		
	Country: *USA*	**Zip Code:** *87185-5400*	**Phone Number:** *505-844-8516*
5. Facility Existence Date (See instructions on page 36)	**Facility Existence Date (mm/dd/yyyy):** *11/19/1980*		

6. Other Environmental Permits (See instructions on page 36) *See Appendix A*

A. Permit Type	B. Permit Number	C. Description

7. Nature of Business (Provide a brief description; see instructions on page 37)

Sandia National Laboratories/New Mexico is a multi-program research and Development (R&D) laboratory of the U.S. Department of Energy. Missions include R&D related to nuclear weapons, energy, and other programs of national interest.

8. Process Codes and Design Capacities (See instructions on page 37)

A. **PROCESS CODE -** ***Enter the code from the list of process codes below that best describes each process to be used at the facility. Thirteen lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 9.***

B. PROCESS DESIGN CAPACITY- For each code entered in column A, enter the capacity of the process.

1. AMOUNT - Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.

2. UNIT OF MEASURE - ***For each amount entered in column B(1), enter the code in column B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.***

C. PROCESS TOTAL NUMBER OF UNITS - ***Enter the total number of units for each corresponding process code.***

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	Disposal:	
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectare-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage:	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Acres; Cubic Meters; Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment:	
T01	Tank Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; or Metric Tons Per Hour
T02	Surface Impoundment Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons per Day; Kilograms Per Hour; Metric Tons Per Day; or Metric Tons Per Hour
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per Day; Liters Per Hour; or Million Btu Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; Btu Per Hour; or Million Btu Per Hour
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour ; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Liters Per Hour; Kilograms Per Hour; or Million Btu Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, or Refining Furnace	Gallons Per Day; Liters Per Day; Pounds Per Hour ; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per H our; Liters Per Hour; or Million Btu Per Hour
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace Pulping Liquor Recovery	
T90	Furnace Combustion Device Used In	
T91	The Recovery Of Sulfur Values From Spent Sulfuric Acid Halogen Acid Furnaces Other Industrial Furnaces	
T92	Listed In 40 CFR §260.10	
T93		
T94	Containment Building –Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
	Miscellaneous (Subpart X)	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per H our; Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour ; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; or Million Btu Per Hour
X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
X99	Other Subpart X	Any Unit of Measure Listed Below

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
Gallons	G	Short Tons Per Hour	D	Cubic Yards	Y
Gallons Per Hour	E	Metric Tons Per Hour	W	Cubic Meters	C
Gallons Per Day	U	Short Tons Per Day	N	Acres	B
Liters	L	Metric Tons Per Day	S	Acre-feet	A
Liters Per Hour	H	Pounds Per Hour	J	Hectares	Q
Liters Per Day	V	Kilograms Per Hour	R	Hectare-meter	F
		Million BTU Per Hour	X	BTU Per Hour	I

8. Process Codes and Design Capacities (Continued) *See Appendix B*

EXAMPLE FOR COMPLETING Item 8 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons

Line Number	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units	For Official Use Only
1	S 0 1	570,386~~586,836~~.0	G	012	
2	T 0 4	945.0	U	006	
3	T 0 4	52.0	J	004	
4					
5	X 0 1	20.8	G	001	
	S 0 1	future capacity: 683,755.0	G	012	

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 9.

9. Other Processes (See instructions on page 37 and follow instructions from Item 8 for D99, S99, T04 and X99 process codes)

Line Number	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units	D. Description of Process
2	T 0 4	120	U	002	Chemical Deactivation, gallons per day
2	T 0 4	895~~220~~	U	002	Macroencapsulation, gallons per day (volume equivalent)
2	T 0 4	605	U	002	Stabilization, gallons per day
3	T 0 4	10	J	001	Thermal Deactivation, pounds per hour
3	T 0 4	40	J	002	Physical Treatment, pounds per hour
3	T 0 4	2	J	001	Amalgamation, pounds per hour

10. Description of Hazardous Wastes (See instructions on page 37)

A. EPA HAZARDOUS WASTE NUMBER - Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY - For each listed waste entered in column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE - For each quantity entered in column B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	*CODE*	*METRIC UNIT OF MEASURE*	*CODE*
POUNDS	*P*	*KILOGRAMS*	*K*
TONS	*T*	*METRIC TONS*	*M*

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

a. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Items 8A and 9A on page 3 to indicate the waste will be stored, treated, and/or disposed at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Items 8A and 9A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

i. Enter the first two as described above.
ii. Enter "000" in the extreme right box of Item 10.D(1).
iii. Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 10.E.

b. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in Item 10.D(2) or in Item 10.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER - Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

c. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.

d. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.

e. Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING Item 10 (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity Of Waste*	*C. Unit of Measure (Enter Code)*	*D. PROCESSES*									
								(1) PROCESS CODES (Enter Code)									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Include With Above

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	P001	125	K	S01				
2	P002	110	K	S01				
3	P003	110	K	S01				
4	P004	110	K	S01				
5	P005	125	K	S01				
6	P006	110	K	S01				
7	P007	110	K	S01				
8	P008	110	K	S01				
9	P009	110	K	S01				
10	P010	110	K	S01				
11	P011	125	K	S01				
12	P012	110	K	S01				
13	P013	110	K	S01				
14	P014	110	K	S01				
15	P015	110	K	S01				
16	P016	110	K	S01				
17	P017	110	K	S01				
18	P018	110	K	S01				
19	P020	110	K	S01				
20	P021	110	K	S01				
21	P022	200	K	S01				
22	P023	110	K	S01				
23	P024	110	K	S01				
24	P026	110	K	S01				
25	P027	110	K	S01				
26	P028	110	K	S01				
27	P029	1,600	K	S01				
28	P030	350	K	S01				
29	P031	110	K	S01				
30	P033	110	K	S01				
31	P034	110	K	S01				
32	P036	110	K	S01				
33	P037	110	K	S01				
34	P038	110	K	S01				
35	P039	110	K	S01				
36	P040	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
37	P041	110	K	S01				
38	P042	110	K	S01				
39	P043	110	K	S01				
40	P044	110	K	S01				
41	P045	110	K	S01				
42	P046	110	K	S01				
43	P047	110	K	S01				
44	P048	110	K	S01				
45	P049	110	K	S01				
46	P050	110	K	S01				
47	P051	110	K	S01				
48	P054	110	K	S01				
49	P056	110	K	S01				
50	P057	110	K	S01				
51	P058	110	K	S01				
52	P059	110	K	S01				
53	P060	110	K	S01				
54	P062	110	K	S01				
55	P063	110	K	S01				
56	P064	250	K	S01				
57	P065	110	K	S01				
58	P066	110	K	S01				
59	P067	110	K	S01				
60	P068	110	K	S01				
61	P069	110	K	S01				
62	P070	110	K	S01				
63	P071	110	K	S01				
64	P072	110	K	S01				
65	P073	110	K	S01				
66	P074	110	K	S01				
67	P075	110	K	S01				
68	P076	110	K	S01				
69	P077	110	K	S01				
70	P078	130	K	S01				
71	P081	110	K	S01				
72	P082	110	K	S01				
73	P084	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
74	P085	110	K	S01				
75	P087	150	K	S01				
76	P088	110	K	S01				
77	P089	110	K	S01				
78	P092	110	K	S01				
79	P093	110	K	S01				
80	P094	110	K	S01				
81	P095	110	K	S01				
82	P096	110	K	S01				
83	P097	110	K	S01				
84	P098	150	K	S01	T04			chemical deactivation
85	P099	110	K	S01				
86	P101	110	K	S01				
87	P102	110	K	S01				
88	P103	110	K	S01				
89	P104	200	K	S01				
90	P105	110	K	S01				
91	P106	1100	K	S01				
92	P108	110	K	S01				
93	P109	110	K	S01				
94	P110	110	K	S01				
95	P111	110	K	S01				
96	P112	110	K	S01				
97	P113	150	K	S01				
98	P114	110	K	S01				
99	P115	110	K	S01				
100	P116	110	K	S01				
101	P118	110	K	S01				
102	P119	110	K	S01				
103	P120	125	K	S01				
104	P121	110	K	S01				
105	P122	110	K	S01				
106	P123	110	K	S01				
107	P127	110	K	S01				
108	P128	110	K	S01				
109	P185	110	K	S01				
110	P188	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
111	P189	110	K	S01				
112	P190	110	K	S01				
113	P191	110	K	S01				
114	P192	110	K	S01				
115	P194	110	K	S01				
116	P196	110	K	S01				
117	P197	110	K	S01				
118	P198	110	K	S01				
119	P199	110	K	S01				
120	P201	110	K	S01				
121	P202	110	K	S01				
122	P203	110	K	S01				
123	P204	110	K	S01				
124	P205	110	K	S01				
125	U001	110	K	S01				
126	U002	1,100	K	S01				
127	U003	350	K	S01				
128	U004	110	K	S01				
129	U005	110	K	S01				
130	U006	110	K	S01				
131	U007	110	K	S01				
132	U008	200	K	S01				
133	U009	110	K	S01				
134	U010	110	K	S01				
135	U011	110	K	S01				
136	U012	125	K	S01				
137	U014	110	K	S01				
138	U015	110	K	S01				
139	U016	110	K	S01				
140	U017	110	K	S01				
141	U018	110	K	S01				
142	U019	250	K	S01				
143	U020	110	K	S01				
144	U021	110	K	S01				
145	U022	110	K	S01				
146	U023	110	K	S01				
147	U024	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
148	U025	110	K	S01				
149	U026	110	K	S01				
150	U027	110	K	S01				
151	U028	5,100	K	S01				
152	U029	110	K	S01				
153	U030	110	K	S01				
154	U031	600	K	S01				
155	U032	600	K	S01				
156	U033	110	K	S01				
157	U034	110	K	S01				
158	U035	150	K	S01				
159	U036	600	K	S01				
160	U037	150	K	S01				
161	U038	110	K	S01				
162	U039	110	K	S01				
163	U041	110	K	S01				
164	U042	110	K	S01				
165	U043	110	K	S01				
166	U044	250	K	S01				
167	U045	125	K	S01				
168	U046	110	K	S01				
169	U047	110	K	S01				
170	U048	110	K	S01				
171	U049	110	K	S01				
172	U050	110	K	S01				
173	U051	175	K	S01				
174	U052	125	K	S01				
175	U053	110	K	S01				
176	U055	125	K	S01				
177	U056	350	K	S01				
178	U057	125	K	S01				
179	U058	110	K	S01				
180	U059	110	K	S01				
181	U060	110	K	S01				
182	U061	110	K	S01				
183	U062	110	K	S01				
184	U063	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
185	U064	110	K	S01				
186	U066	110	K	S01				
187	U067	125	K	S01				
188	U068	110	K	S01				
189	U069	200	K	S01				
190	U070	150	K	S01				
191	U071	110	K	S01				
192	U072	110	K	S01				
193	U073	110	K	S01				
194	U074	110	K	S01				
195	U075	300	K	S01				
196	U076	110	K	S01				
197	U077	300	K	S01				
198	U078	150	K	S01				
199	U079	150	K	S01				
200	U080	1,100	K	S01				
201	U081	110	K	S01				
202	U082	110	K	S01				
203	U083	110	K	S01				
204	U084	110	K	S01				
205	U085	110	K	S01				
206	U086	110	K	S01				
207	U087	110	K	S01				
208	U088	110	K	S01				
209	U089	110	K	S01				
210	U090	110	K	S01				
211	U091	110	K	S01				
212	U092	110	K	S01				
213	U093	110	K	S01				
214	U094	110	K	S01				
215	U095	110	K	S01				
216	U096	110	K	S01				
217	U097	110	K	S01				
218	U098	110	K	S01				
219	U099	110	K	S01				
220	U101	110	K	S01				
221	U102	120	K	S01	T04			stabilization

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
222	U103	110	K	S01				
223	U105	110	K	S01	T04			physical treatment
224	U106	110	K	S01				
225	U107	150	K	S01	T04			stabilization
226	U108	150	K	S01				
227	U109	110	K	S01				
228	U110	110	K	S01				
229	U111	110	K	S01				
230	U112	1,100	K	S01				
231	U113	110	K	S01				
232	U114	110	K	S01				
233	U115	110	K	S01				
234	U116	110	K	S01				
235	U117	130	K	S01				
236	U118	110	K	S01				
237	U119	110	K	S01				
238	U120	110	K	S01				
239	U121	300	K	S01				
240	U122	600	K	S01				
241	U123	135	K	S01				
242	U124	110	K	S01				
243	U125	110	K	S01				
244	U126	110	K	S01				
245	U127	110	K	S01				
246	U128	110	K	S01				
247	U129	110	K	S01				
248	U130	110	K	S01				
249	U131	150	K	S01				
250	U132	125	K	S01				
251	U133	350	K	S01				
252	U134	2,100	K	S01				
253	U135	175	K	S01				
254	U136	110	K	S01				
255	U137	110	K	S01				
256	U138	110	K	S01				
257	U140	150	K	S01				
258	U141	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
259	U142	110	K	S01				
260	U143	110	K	S01				
261	U144	400	K	S01				
262	U145	110	K	S01				
263	U146	110	K	S01				
264	U147	200	K	S01				
265	U148	110	K	S01				
266	U149	110	K	S01				
267	U150	110	K	S01				
268	U151	1,400	K	S01	T04			amalgamation, physical treatment
269	U152	110	K	S01				
270	U153	110	K	S01				
271	U154	600	K	S01				
272	U155	110	K	S01				
273	U156	110	K	S01				
274	U157	110	K	S01				
275	U158	125	K	S01				
276	U159	225	K	S01				
277	U160	150	K	S01				
278	U161	150	K	S01				
279	U162	200	K	S01				
280	U163	110	K	S01				
281	U164	110	K	S01				
282	U165	1,100	K	S01				
283	U166	110	K	S01				
284	U167	110	K	S01				
285	U168	110	K	S01				
286	U169	300	K	S01				
287	U170	110	K	S01				
288	U171	125	K	S01				
289	U172	110	K	S01				
290	U173	110	K	S01				
291	U174	110	K	S01				
292	U176	110	K	S01				
293	U177	150	K	S01				
294	U178	150	K	S01				
295	U179	200	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
296	U180	200	K	S01				
297	U181	150	K	S01				
298	U182	125	K	S01				
299	U183	125	K	S01				
300	U184	125	K	S01				
301	U185	125	K	S01				
302	U186	150	K	S01				
303	U187	110	K	S01				
304	U188	125	K	S01				
305	U189	110	K	S01				
306	U190	110	K	S01				
307	U191	110	K	S01				
308	U192	110	K	S01				
309	U193	110	K	S01				
310	U194	110	K	S01				
311	U196	125	K	S01				
312	U197	110	K	S01				
313	U200	110	K	S01				
314	U201	125	K	S01				
315	U202	110	K	S01				
316	U203	110	K	S01				
317	U204	125	K	S01				
318	U205	110	K	S01				
319	U206	110	K	S01				
320	U207	110	K	S01				
321	U208	110	K	S01				
322	U209	120	K	S01				
323	U210	125	K	S01				
324	U211	200	K	S01				
325	U213	450	K	S01				
326	U214	110	K	S01				
327	U215	110	K	S01				
328	U216	110	K	S01				
329	U217	110	K	S01				
330	U218	110	K	S01				
331	U219	125	K	S01				
332	U220	600	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
333	U221	110	K	S01				
334	U222	110	K	S01				
335	U223	1,100	K	S01				
336	U225	150	K	S01				
337	U226	4,100	K	S01				
338	U227	1,600	K	S01				
339	U228	1,100	K	S01				
340	U234	110	K	S01	T04			physical treatment
341	U235	110	K	S01				
342	U236	110	K	S01				
343	U237	110	K	S01				
344	U238	110	K	S01				
345	U239	350	K	S01				
346	U240	110	K	S01				
347	U243	110	K	S01				
348	U244	110	K	S01				
349	U246	110	K	S01				
350	U247	110	K	S01				
351	U248	110	K	S01				
352	U249	110	K	S01				
353	U271	110	K	S01				
354	U278	110	K	S01				
355	U279	110	K	S01				
356	U280	110	K	S01				
357	U328	110	K	S01				
358	U353	110	K	S01				
359	U359	200	K	S01				
360	U364	110	K	S01				
361	U367	110	K	S01				
362	U372	110	K	S01				
363	U373	110	K	S01				
364	U387	110	K	S01				
365	U389	110	K	S01				
366	U394	110	K	S01				
367	U395	110	K	S01				
368	U404	110	K	S01				
369	U409	110	K	S01				

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
370	U410	110	K	S01				
371	U411	110	K	S01				
372	F001	265,000	K	S01	T04			macroencapsulation, stabilization, physical treatment
373	F002	272,000	K	S01	T04			macroencapsulation, stabilization, physical treatment
374	F003	275,000	K	S01	T04	X01		thermal treatment, macroencapsulation, stabilization, physical treatment
375	F004	1,500	K	S01	T04			macroencapsulation, stabilization, physical treatment
376	F005	262,000	K	S01	T04	X01		thermal treatment, macroencapsulation, stabilization, physical treatment
377	F006	200	K	S01				
378	F007	6,500	K	S01				
379	F008	200	K	S01				
380	F009	200	K	S01				
381	F010	200	K	S01				
382	F011	200	K	S01				
383	F012	100	K	S01				
384	F019	100	K	S01				
385	F020	100	K	S01				
386	F021	100	K	S01				
387	F022	100	K	S01				
388	F023	100	K	S01				
389	F024	100	K	S01				
390	F025	100	K	S01				
391	F026	100	K	S01				
392	F027	150	K	S01				
393	F028	100	K	S01				
394	FO32	100	K	S01				
395	F034	100	K	S01				
396	F035	100	K	S01				
397	F037	100	K	S01				
398	F038	100	K	S01				
399	F039	250,000	K	S01	~~T04~~			
400	D001	125,500	K	S01	T04	X01		thermal treatment, thermal deactivation, chemical deactivation, physical treatment
401	D002	58,000	K	S01	T04			chemical deactivation, physical treatment
402	D003	41,000	K	S01	T04	X01		thermal treatment, thermal deactivation, chemical deactivation, physical treatment

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
403	D004	39,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
404	D005	48,000	K	S01	T04			thermal deactivation, chemical deactivation, stabilization, macroencapsulation, physical treatment
405	D006	105,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
406	D007	66,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
407	D008	125,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
408	D009	40,000	K	S01	T04			stabilization, macroencapsulation, amalgamation, physical treatment
409	D010	2,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
410	D011	45,000	K	S01	T04			stabilization, macroencapsulation, physical treatment
411	D012	25,050	K	S01				
412	D013	150	K	S01				
413	D014	150	K	S01				
414	D015	150	K	S01				
415	D016	150	K	S01				
416	D017	150	K	S01				
417	D018	32,000	K	S01	T04			physical treatment
418	D019	25,200	K	S01	T04			physical treatment
419	D020	25,050	K	S01	T04			physical treatment
420	D021	25,100	K	S01	T04			physical treatment
421	D022	26,000	K	S01	T04			physical treatment
422	D023	25,050	K	S01	T04			physical treatment
423	D024	25,050	K	S01	T04			physical treatment
424	D025	25,050	K	S01	T04			physical treatment
425	D026	25,100	K	S01	T04			physical treatment
426	D027	25,100	K	S01	T04			physical treatment
427	D028	26,000	K	S01	T04			physical treatment
428	D029	25,100	K	S01	T04			physical treatment
429	D030	25,500	K	S01	T04			physical treatment
430	D031	25,050	K	S01	T04			physical treatment
431	D032	25,100	K	S01	T04			physical treatment
432	D033	25,100	K	S01	T04			physical treatment
433	D034	25,500	K	S01	T04			physical treatment
434	D035	40,000	K	S01	T04			physical treatment
435	D036	25,100	K	S01	T04			physical treatment
436	D037	25,100	K	S01	T04			physical treatment

10. Description of Hazardous Wastes

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity Of Waste	C. Unit of Measure (Enter Code)	D. PROCESSES (1) PROCESS CODES (Enter Code)				(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
437	D038	25,100	K	S01	T04			physical treatment
438	D039	27,000	K	S01	T04			physical treatment
439	D040	30,000	K	S01	T04			physical treatment
440	D041	25,050	K	S01	T04			physical treatment
441	D042	25,050	K	S01	T04			physical treatment
442	D038	25,100	K	S01	T04			physical treatment
443	D039	27,000	K	S01	T04			physical treatment
444	D040	30,000	K	S01	T04			physical treatment
445	D041	25,050	K	S01	T04			physical treatment
446	D042	25,050	K	S01	T04			physical treatment
447	D043	25,050	K	S01	T04			physical treatment

NOTE The treatment methods listed for each hazardous waste number are the methods that are appropriate for that waste number. Wastes with multiple numbers may undergo one or more types of treatment at SNL/NM for some or all of the characteristics and/or constituents. Wastes are then sent to off-site TSDFs for further treatment as needed before disposal.

11. Map (See instructions on page 38 : *See Figure B-1*

Attach to this application a topographic map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.

12. Facility Drawing (See instructions on Page 39: *See Appendix B*

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

13. Photographs (See instructions on page 39): *See Appendix B*

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

14. Comments (See instructions on page 39)

APPENDIX A

ACTIVE ENVIRONMENTAL PERMITS

This page intentionally left blank.

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/043

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
SEWER WASTEWATER				
General	2069 A-65	0323/00 7/1/03	06/30/03 12/31/07	COA
General	2069 F-65	01/3/00 08/01/03	07/31/03 01/31/08	COA
Microelectronics Development Laboratory	2069 G-5	06/01/02	05/31/05	COA
General	2069 I-4 Renewal Submitted	01/24/00 10/14/03	01/31/04 extended	COA
General	2069 K-4	03/01/02	10/31/04	COA
SURFACE DISCHARGE				
Pulsed Power Development Facilities (Discharge Plan)	DP-530	09/21/01	09/21/06	NMED
STORM WATER				
National Pollution Discharge Elimination System "Multi-sector General" Permit	NMR05A961	02/01	09/30/05	EPA
Storm Drain, Sanitary Sewer, and Domestic Water System Modernization	NMR10B507	06/29/99	08/0406/31/03 (estimated date)	EPA
NPDES construction permit for the Joint Computational Engineering Laboratory	NM0002377[b]	04/20/02	03/0410/03	EPA
MESAJoint Computational Engineering Laboratory	NM0002376[b]	01/28/02	07/31/09 (estimated date)	EPA
Aerial Cable Facilities Renovations	[b]	3/04	2/05	EPA
Center for Integrated Nanotechnologies	[b]	10/03	6/06	EPA
SCA/CUB	[b]	9/02	8/03	EPA
ECOLOGICAL				
New Mexico Department of Game and Fish, for Scientific/Educational Purposes, Authorization for Taking of Protected Wildlife	2931	01/01/02	12/31/02[a]	New Mexico Department of Game and Fish
Fish and Wildlife Special Purpose Salvage Permit (for migratory birds)	MB040780-0	05/30/01	12/31/03	U.S. Fish and Wildlife Service
UNDERGROUND STORAGE TANKS				
9,750 gal emergency generator fuel	6383	07/1/031	06/30/043	NMED, UPST Bur.
20,000 gal oil storage tank	6384	07/1/031	06/30/043	NMED, UPST Bur.
20,000 gal oil storage tank	6385	07/1/031	06/30/043	NMED, UPST Bur.

NOTE:
[a] Applied for permit renewal, not yet received.
[b] Permit number not issued yet.
COA = City of Albuquerque
NMED = New Mexico Environment Department
EPA = U.S. Environmental Protection Agency
U PST Bur. = Underground Petroleum Storage Tank Bureau

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/043 (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
ABOVEGROUND STORAGE TANKS				
1,024,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
508,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
213,898 gal storage tank	[b]	07/01/032	06/30/043	NMED
209,421 gal storage tank	[b]	07/01/032	06/30/043	NMED
45,490 gal storage tank	[b]	07/01/032	06/30/043	NMED
44,129 gal storage tank	[b]	07/01/032	06/30/043	NMED
10,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
10,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
10,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
75,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
75,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
75,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
250,000 gal storage tank	[b]	07/01/032	06/30/043	NMED
25,000 gal storage tank	[b]	07/01/032	06/30/043	NMED

NOTE:
[b] Permit number not issued yet.
NMED = New Mexico Environment Department

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/043 (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
RCRA				
RCRA Part B Operating Permit for the Hazardous Waste Management Facility Module I - General Permit Conditions Module II - General Facility Conditions Module III - Containers	NM5890110518-1	08/06/92	08/06/02 [c]	NMED
RCRA Part B Operating Permit Module IV - Hazardous and Solid Waste Amendments Portion for Solid Waste Management Units	NM5890110518-1	08/26/93	09/20/02 [c]	EPA/NMED
RCRA Part B Operating Permit for the Thermal Treatment Facility Module I - General Permit Conditions Module II - General Facility Conditions Module III - Containers	NM5890110518-2	12/04/94	12/04/04 [c]	NMED
General Part A Permit Request Storage and/or treatment of the hazardous component of mixed RCRA-regulated waste at tentwelve waste management Units.	NM5890110518	First submitted 8/90 Rev. 54, 045/1628/032	Pending Review (No expiration date)	NMED
Class III Permit Modification for the Management of Hazardous Remediation Waste in the Corrective Action Management Unit (CAMU), Technical Area III	NM5890110518	09/25/97	09/20/02 [c] 4/19/04 [d]	NMED
Class II Permit Modification for Temporary Treatment Operations at the CAMU	NM5890110518	04/04/02	One year after TU is ready for operation	NMED
Class II Permit Modification for Low Temperature Thermal Desorption Treatment Operations at the CAMU	NM5890110518	09/24/02	None	NMED
Comprehensive Part B Permit Request Storage and/or treatment of RCRA-regulated waste at nine waste management Units.	NM5890110518	02/06/02 [c]		NMED
TSCA				
Risk-Based Approval Request under 40 CFR 761.61(c); Risk-Based Method for Management of PCB Materials; Chemical Waste Landfill and CAMU		06/26/02	No expiration date[d]	EPA

NOTE:

[a] Applied for permit renewal; not yet received

[c] Submitted application for renewal on 02/06/2002, undergoing NMEDagency review. Application has been revised in response to NMED comments.

[d] CAMU closure report submitted in 4/19/04, undergoing agency review.

EPA = U.S. Environmental Protection Agency
NMED = New Mexico Environment Department
RCRA = Resource Conservation and Recovery Act
TSCA = Toxic Substances Control Act

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03~~1~~/31~~22~~/04~~2~~ (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
AIR (Open Burn Permits)				
Fire Extinguisher (Fire Training)		~~cd~~		COA
Burn Site		~~cd~~		COA
Burn Site/Sled Track		~~cd~~		COA
Burn Site (Large Pool Fire Tests)		~~cd~~		COA
Explosive Testing		~~cd~~		COA
9920 and Sled Track		~~cd~~		COA
Thermal Treatment Facility (permit must be submitted to NMED within 30 days of receipt)	76-OB-5-2003	03/18~~21~~/04~~3~~	12/31/04~~3~~	COA
AIR (Permits & Registrations)				
Hammermill Facility	144	08/28/85	Biennial update	COA
Fire Laboratory used for the Authentication of Modeling and Experiments	196	05/19/88	Registration†	COA
Neutron Generator Facility	374- MI	07/17/98	Biennial update	COA
Neutron Generator Recertification	396	05/07/96	Biennial update	COA
Standby diesel generators (four)	402	05/07/96	Biennial update	COA
Radioactive & Mixed Waste Management Facility	415- M1	11/24/99	Biennial update	COA
Isotope Production Facility	428	07/08/96	Biennial update	COA
Title V Operating Permit	515 (pending)	Submitted [a] 03/1/96	Pending (5 yr renewal)	COA
Classified Waste Landfill	560	12/17/96	Biennial update	COA
Classified Waste Landfill	NESHAP	06/96	Approval ††	EPA
Advanced Manufacturing Processes Laboratory	646	01/23/97	Biennial update	COA
Portable Burn Pools	647	05/05/97	Biennial update	COA
Chemical Waste Landfill (CWL) Excavation	540	5/19/99	Registration †	COA
~~Chemical Waste Landfill -Voluntary Corrective Measure~~	~~648~~	~~05/23/97~~	~~Registration †~~	~~COA~~
~~Soil Washing / Soil Stabilization Unit, CAMU~~	~~888-M1~~	~~08/21/02~~	~~Biennial update~~	~~COA~~
High Energy Radiation Megavolt Electron Source-III	NESHAP	6/29/88	Approval ††	EPA
Advanced Manufacturing Prototype Facility	1406	11/6/00	Registration †	COA
Microelectronics Development Laboratory	1678	12/23/02	Biennial update	COA
Emergency Generator	924	5/5/98	Biennial update	COA
Processing and Environmental Technology Laboratory	925-M1	03/05/01	Biennial update	COA
Processing and Environmental Technology Laboratory	936	pending registration		COA

NOTE:

[a] Applied for permit renewal; not yet received

~~d~~e COA issues open burn permits annually. Sandia/DOE ~~have~~ applied for~~/will apply for~~ this permit for calendar year 2004~~3~~.

† Registration = Certificate, no permit required.

†† Approval = EPA does not issue a permit.
EPA = U.S. Environmental Protection Agency

APPENDIX B

LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, ANNUAL QUANTITIES, FIGURES, AND PHOTOGRAPHS

This page left intentionally blank.

Explanation of Process Code Listings and Design Capacities at the Hazardous Waste Management Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage[a]		
Container storage area	599,950 gallons	Building 958
Container storage area	7,590 gallons	Building 959
Container storage area	5,0005 gallons	Modular Storage Building 958B
Container storage area	5,0005 gallons	Modular Storage Building 958C
Total S01	**117,75450 gallons**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Thermal Treatment Facility

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 5 X01 Treatment: Thermal[b]			
Thermal treatment of explosive waste	20.8 gallons/batch 190 pounds/batch	9,500 pounds/year	South of Building 6715
Total X01	**20.8 gallons/batch** **190 pounds/batch**	**9,500 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Existing Radioactive and Mixed Waste Management Facility (RMWMF) and Future Consolidated Waste Management Facility (CWMF)

Description	Existing RMWMF Capacity	Future CWMF Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]			
Container storage area	13,420 gallons	57,070 gallons	Building 6920
Container storage area	7,810 gallons	7,810 gallons	Building 6921
Container storage area	83,160 gallons	83,160 gallons	Building 6925
Container storage area	83,160 gallons	73,419 gallons	Building 6926
Container storage area	1,100 gallons	1,100 gallons	Modular Storage Building TP150
Container storage area	1,100 gallons	1,100 gallons	Modular Storage Building TP153
Container storage area	- -	5,000 gallons	Additional Modular Storage Building
Container storage area	- -	5,000 gallons	Additional Modular Storage Building
Container storage area	19,800 gallons	15,840 gallons	Asphalt area N, E, and W of Building 6920
Total S01	**209,550 gallons**	**322,919 gallons**	

Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Existing Radioactive and Mixed Waste Management Facility (RMWMF) and Future Consolidated Waste Management Facility (CWMF) (Continued)

Description	Capacity (Existing RMWMF and Future CWMF)	Annual Quantity (Existing RMWMF and Future CWMF)	Associated Structure/Building
Line 3 T04 Other Treatment (in containers)[c, d, e]			
Chemical deactivation	65 gallons/day	3,000 gallons/year	Building 6920, Building 6921
Macroencapsulation	840~~165~~ gallons/day	6,000 gallons/year	Building 6920, Building 6921, Building 6925
Stabilization	550 gallons/day	6,000 gallons/year	Building 6920, Building 6921
Thermal deactivation	10 pounds/hour	150 pounds/year	Building 6920, Building 6921
Amalgamation	2 pounds/hour	100 pounds/year	Building 6920, Building 6921
Total T04	**780 gallons/day and 12 pounds/hour**	**15,000 gallons/year and 250 pounds/year**	

Description	Capacity (Existing RMWMF and Future CWMF)	Annual Quantity (Existing RMWMF and Future CWMF)	Associated Structure/Building
Line 4 T04 Other Treatment (physical treatment)[f]			
Physical treatment	20 pounds/hour	4,000 pounds/year	Building 6920, Building 6921
Total T04	**20 pounds/hour**	**4,000 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings and Design Capacities at the High Bay Waste Storage Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]		
Container storage area	100,320 gallons	Building 6596
Total S01	**100,320 gallons**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Auxiliary Hot Cell Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage[a]		
Container storage area	3,5202,200 gallons	Building 6597
Storage silos	1,456 gallons	Building 6597
Hot cell	900 gallons	Building 6597
Fume hood	110 gallons (capacity included in work area)	Building 6597
Work area	2,200 gallons	Building 6597
Total S01	**6,9763,656 gallons**	

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 2 T04 Other Treatment (in containers)[c, d]			
Chemical deactivation	55 gallons/day	2,000 gallons/ year	Building 6597
Macroencapsulation	55 gallons/day	6,000 gallons/year	Building 6597
Stabilization	55 gallons/day	2,000 gallons/year	Building 6597
Total T04	**165 gallons/day**	**10,000 gallons/year**	

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 4 T04 Other Treatment (physical treatment)[f]			
Physical treatment	20 pounds/hour	4,000 pounds/year	Building 6597
Total T04	**20 pounds/hour**	**4,000 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings and Design Capacities at the Manzano Storage Bunkers

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage[a]		
Container storage area	50,160 gallons	Type B Bunkers Bunkers 37034 and 37063
Container storage area	50, 160 gallons	Type C Bunkers Bunkers 37078 and 37118
Container storage area	55,440 gallons	Type D Bunkers Bunkers 37045, 37055, and 37057
Total S01	**155,760 gallons**	

See footnotes at end of section

Footnotes for Process Codes and Capacities

[a] Wastes are stored in a variety of containers, including large boxes, 55-gallon drums, and smaller containers.

[b] The quantity of waste undergoing treatment at any one time cannot exceed the 20.8-gallon capacity of the burn pan.

[c] Wastes are treated by stabilization, chemical deactivation, and amalgamation in a variety of containers, including 55-gallon drums, 5-gallon buckets, laboratory glassware, and other containers as appropriate for the process.

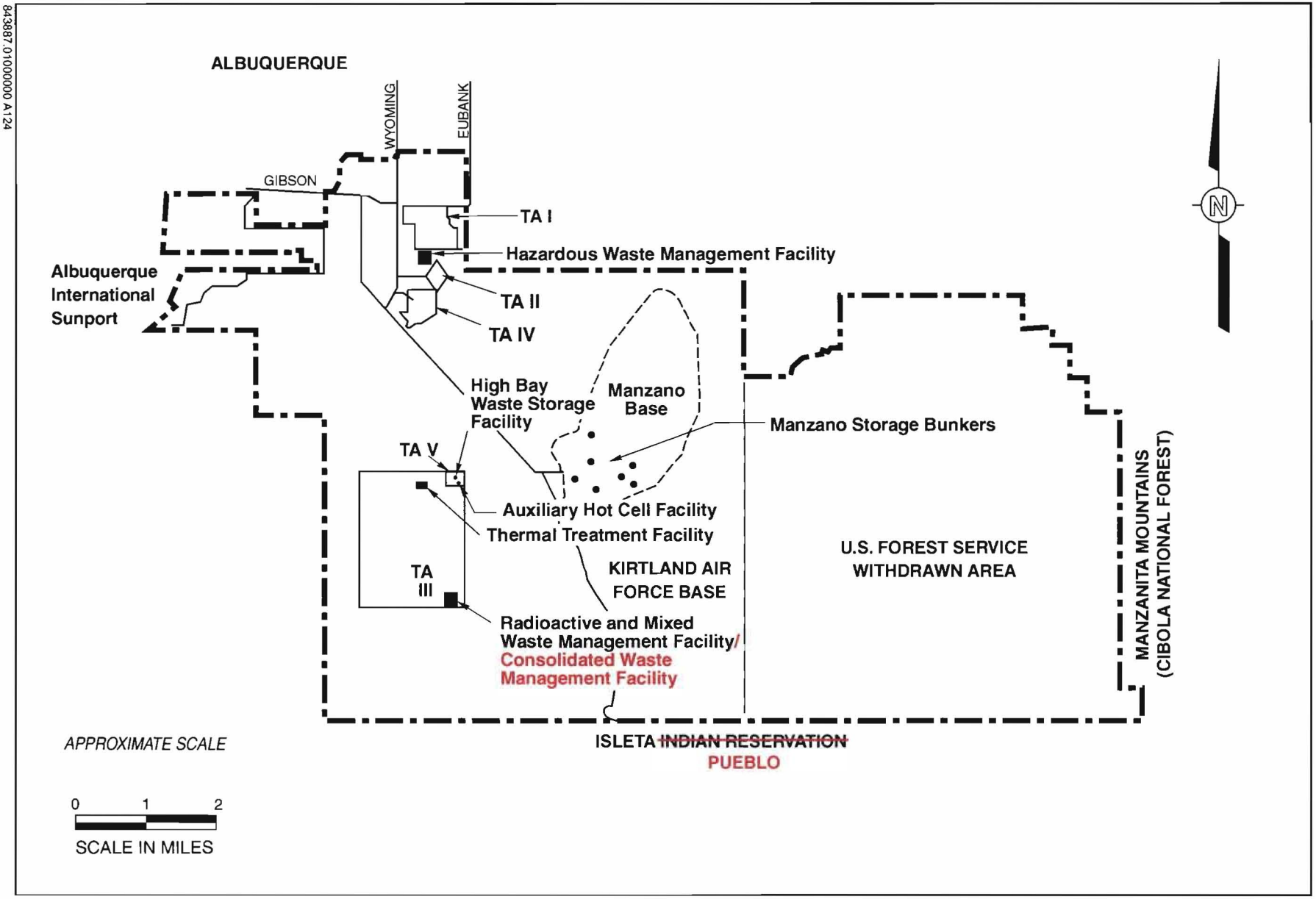
[d] Wastes are placed in suitable containers and macroencapsulated. The container size is determined by the quantity of waste requiring treatment and the macroencapsulation process. Containers include 7 ft X 4 ft X 4 ft boxes (equivalent volume of 840 gallons), 55-gallon drums, and smaller containers. Liquid wastes are not treated through macroencapsulation; the volume of waste treated is equivalent to the number of gallons listed.

[e] Wastes are placed in the thermal deactivation equipment and treated. The time required to complete treatment depends on the waste.

[f] Physical treatment volumes depend on the size of the equipment or other item undergoing treatment (e.g., size reduction, separation). Volumes vary widely.

LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, AND ANNUAL QUANTITIES

FIGURES



843887.01000000 A124

Figure B-2

Sandia National Laboratories/New Mexico, Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units

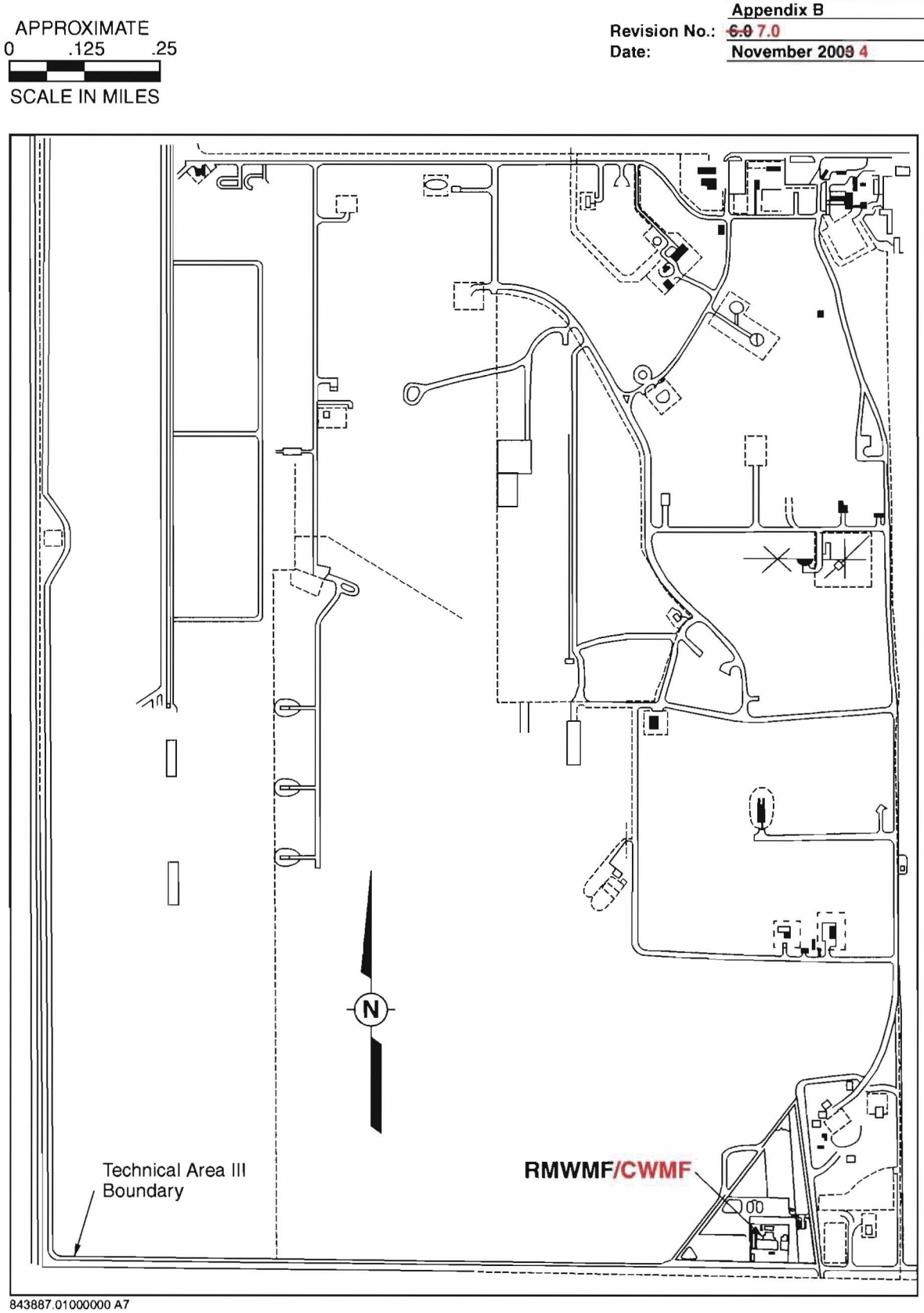


Figure B-8
Location of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility ~~(RMWMF)~~ in Technical Area III

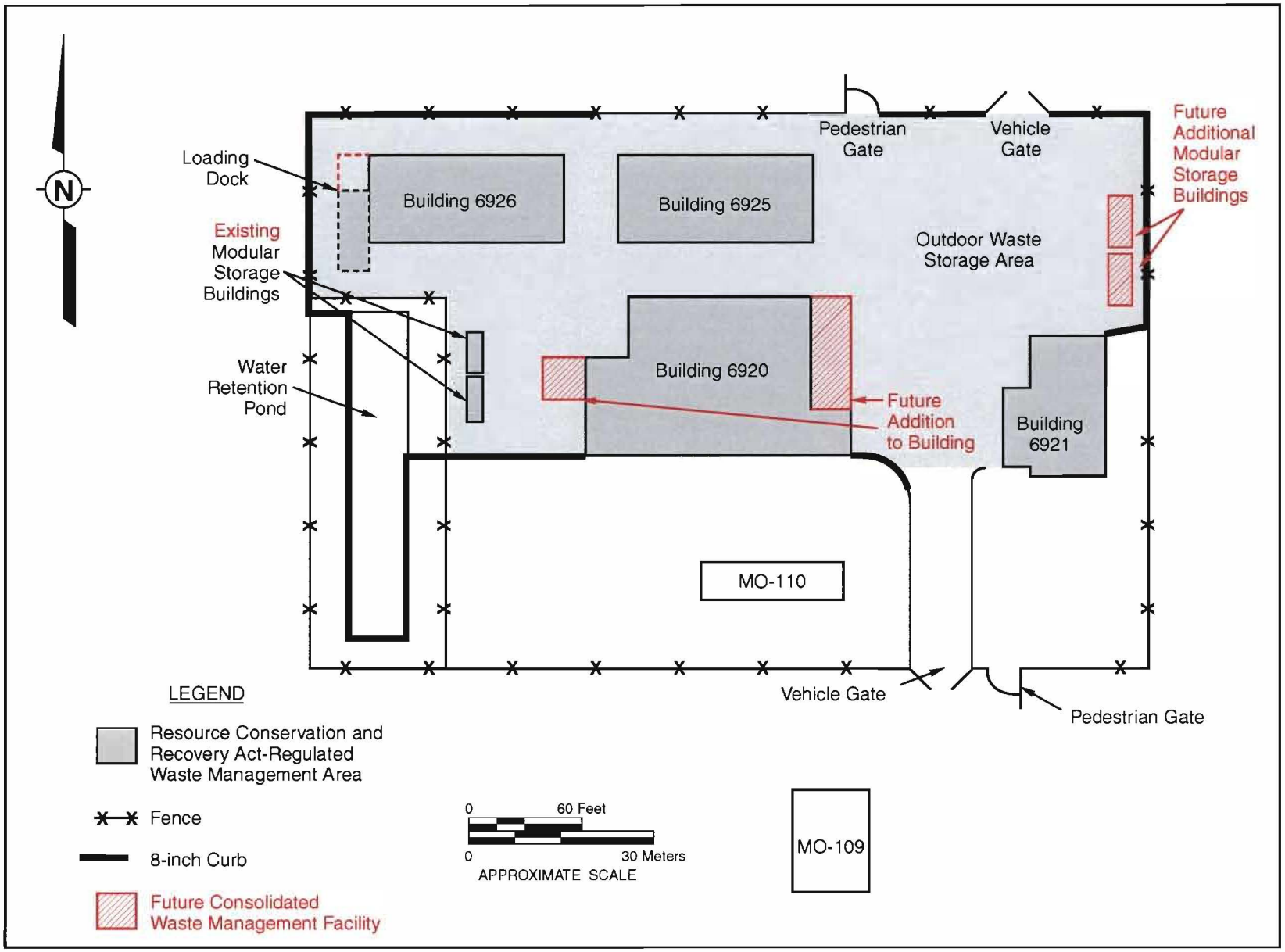


Figure B-9
Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas

843887.01000000 A177

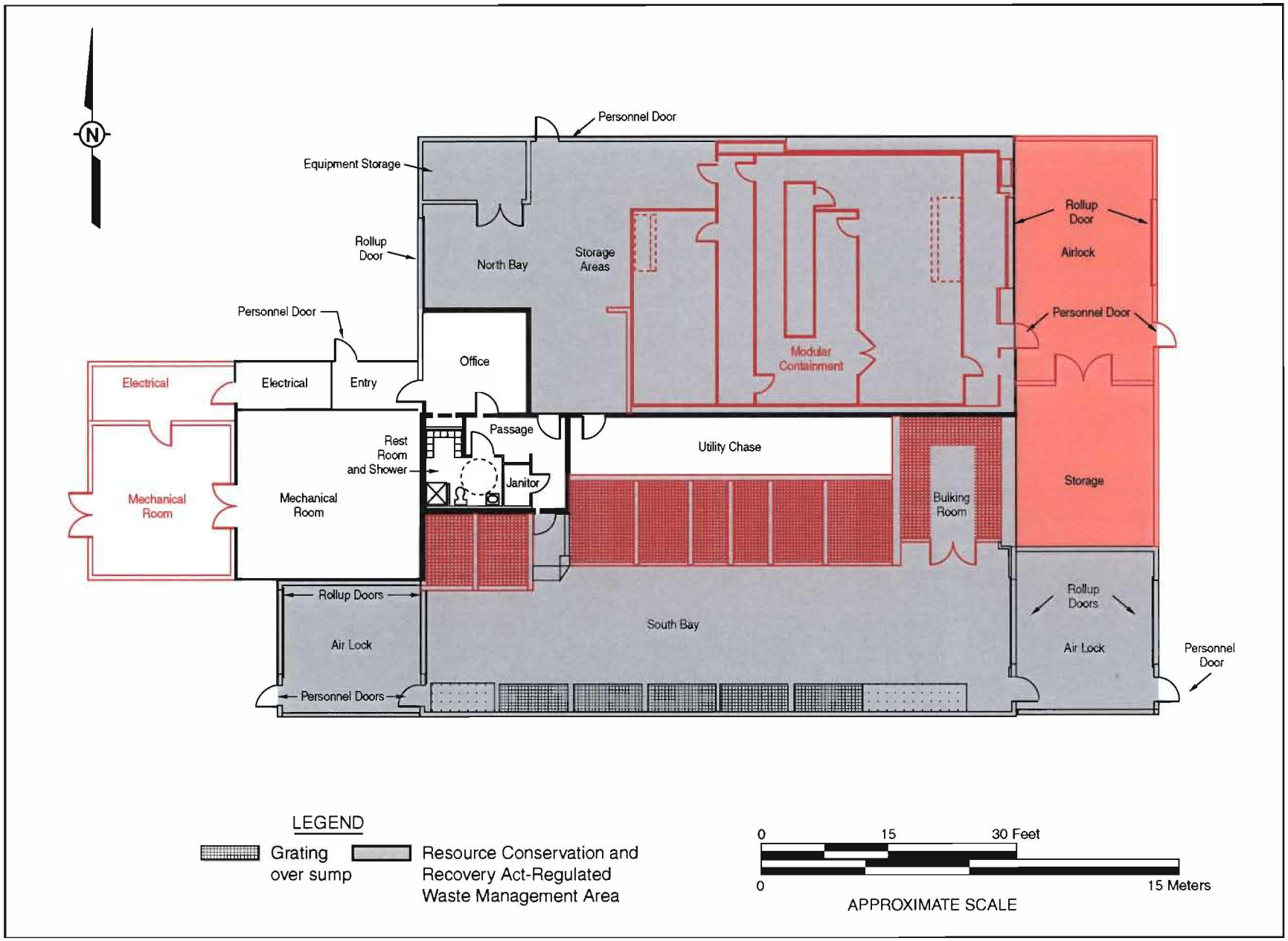


Figure B-11
Consolidated Waste Management Facility, Building 6920,
Resource Conservation and Recovery Act-Regulated Waste Management Areas

843887.01000000.A176

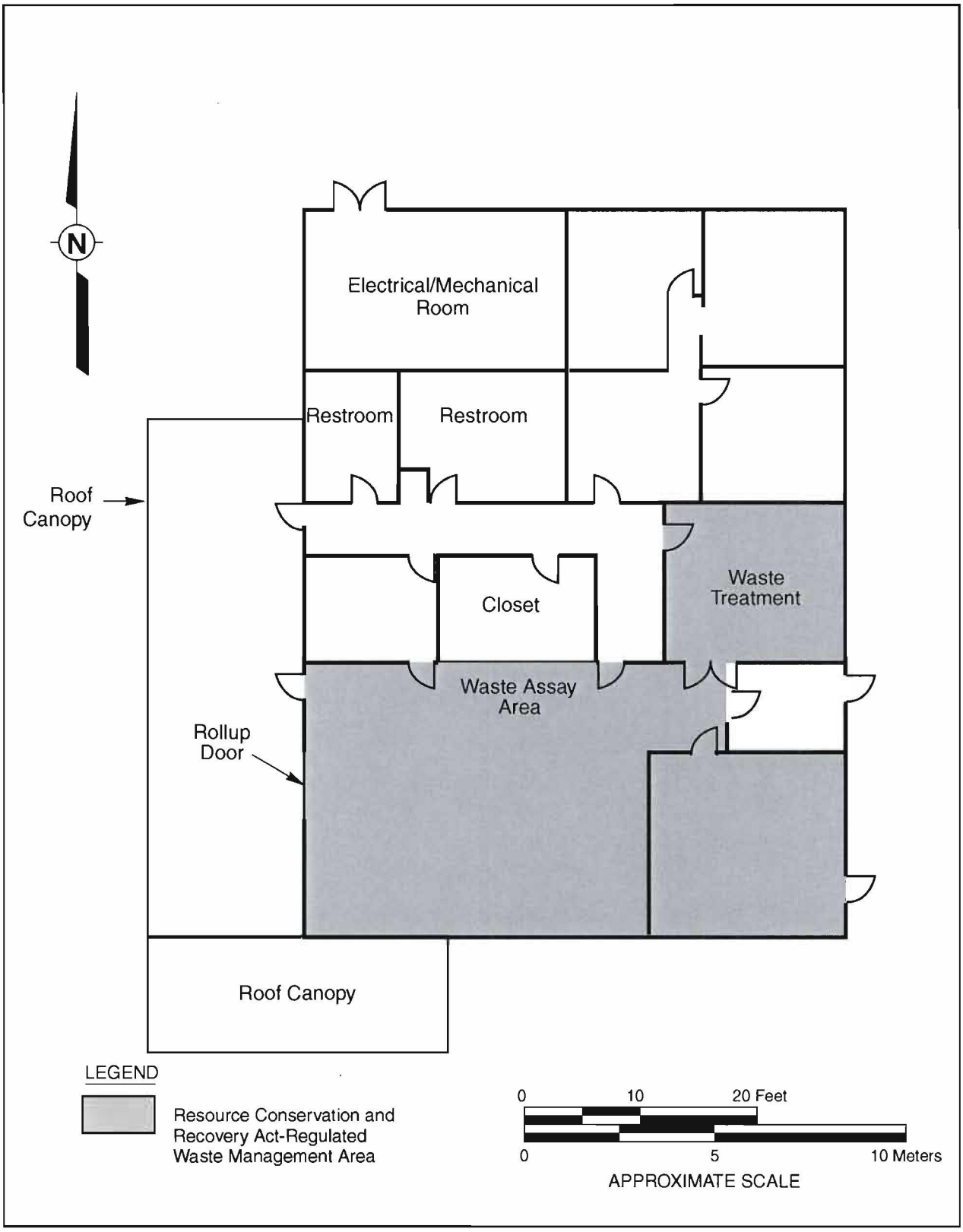


Figure B-~~11~~ 12
Radioactive and Mixed Waste Management Facility/
Consolidated Waste Management Facility, Building 6921,
Resource Conservation and Recovery Act-Regulated Waste Management Areas

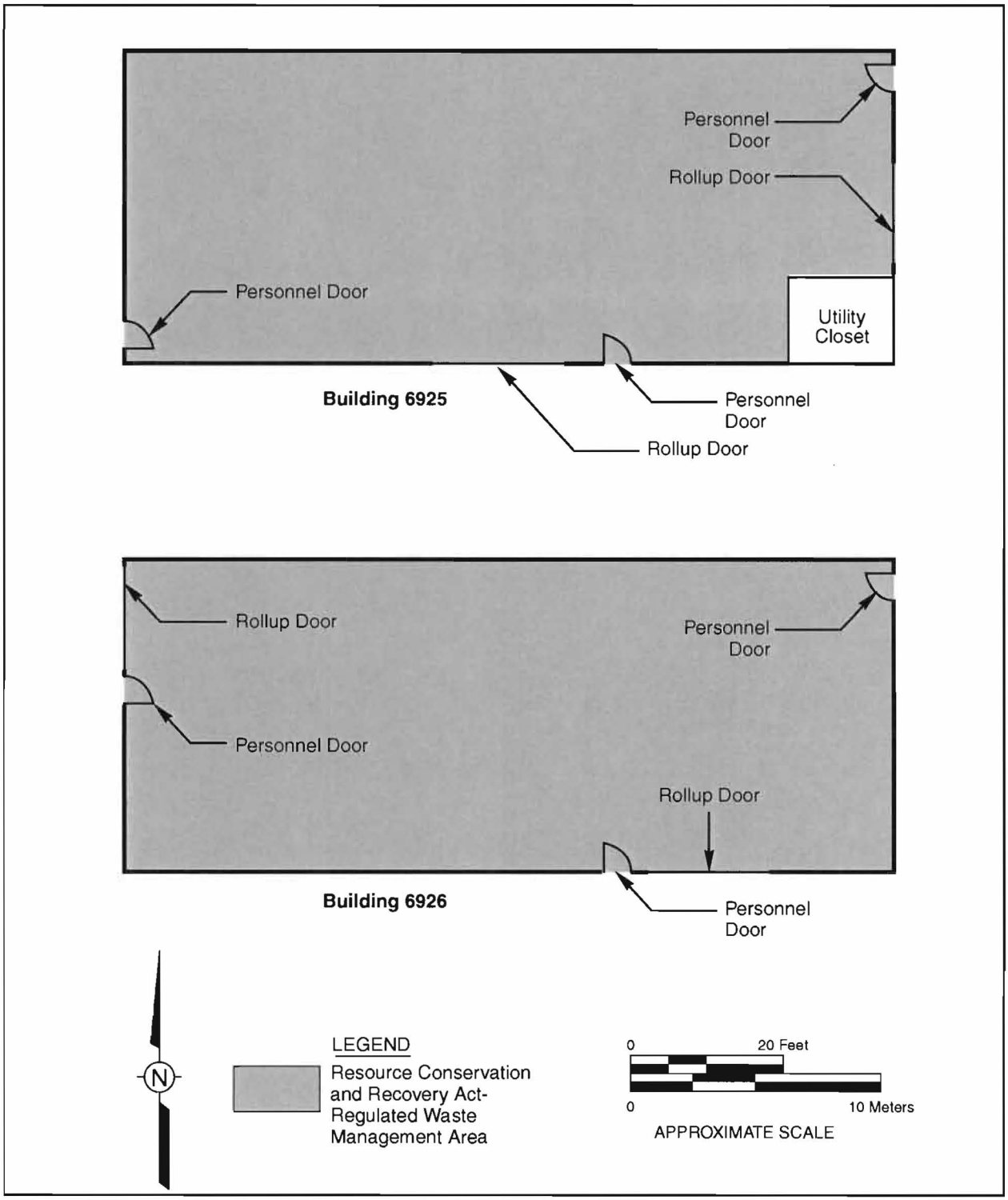


Figure B-~~12~~ 13

Radioactive and Mixed Waste Management Facility ~~Compound~~, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas

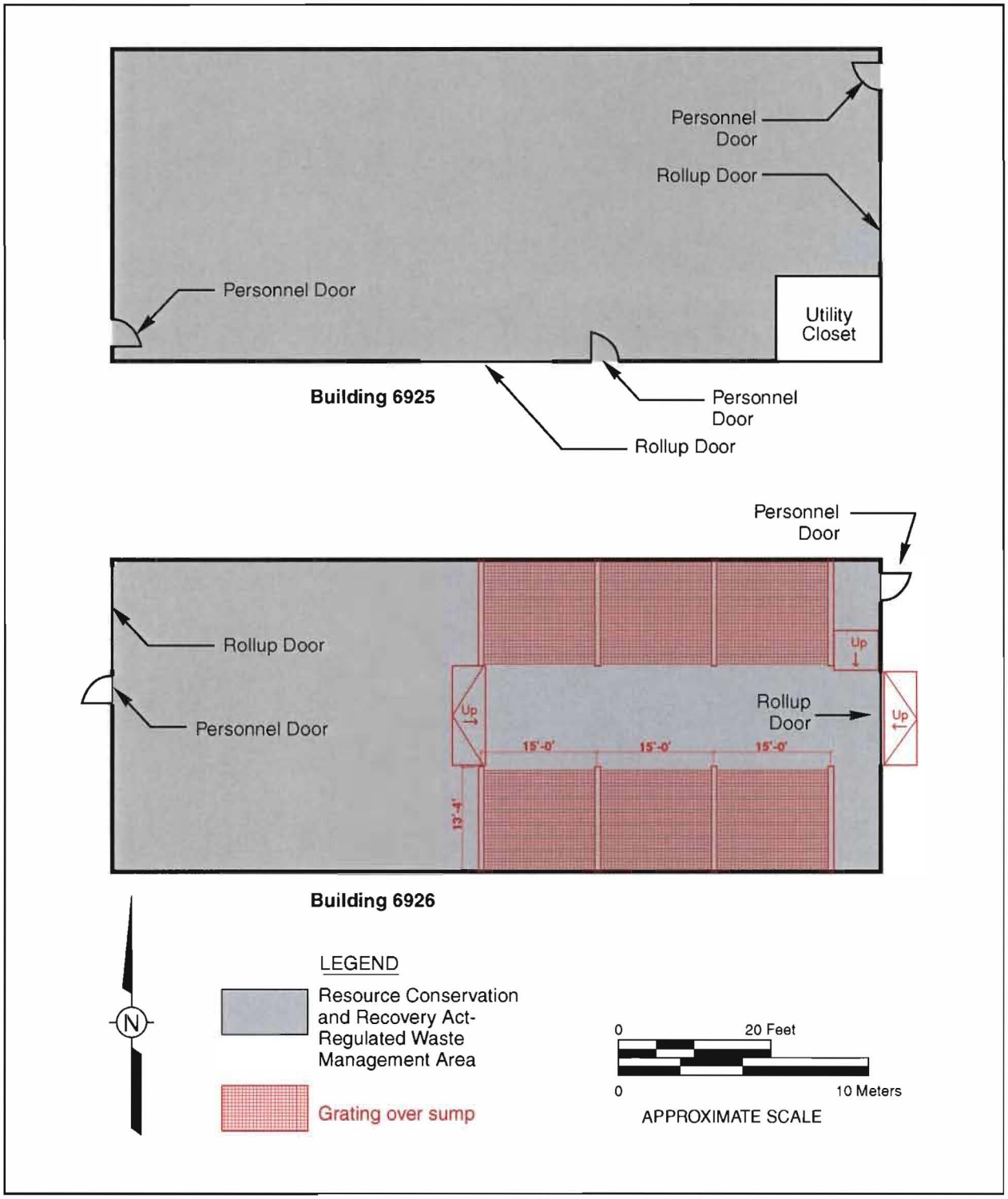


Figure B-14

Consolidated Waste Management Facility, Building 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas

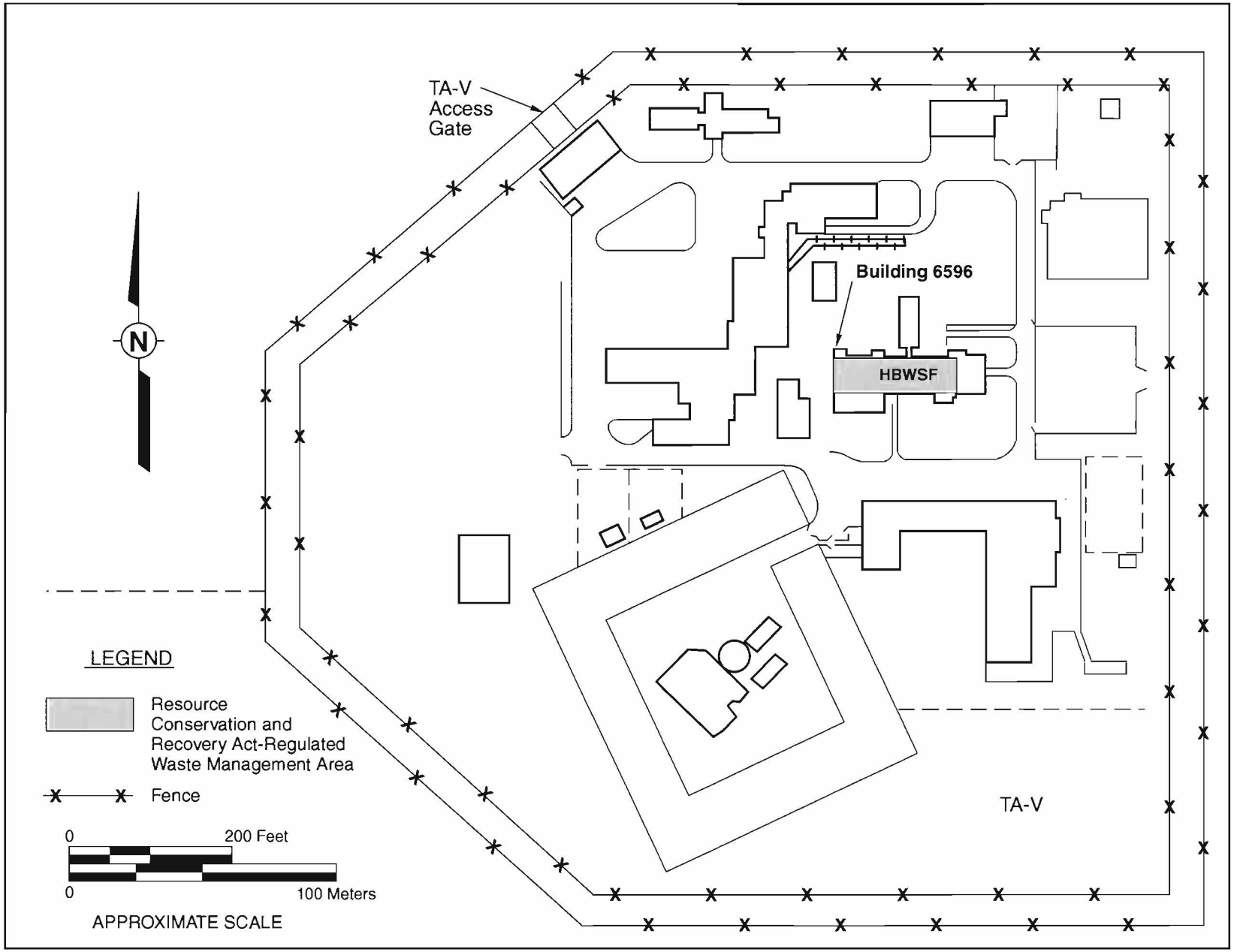


Figure B-~~13~~ 15
Location of the High Bay Waste Storage Facility (HBWSF) in Technical Area (TA) V

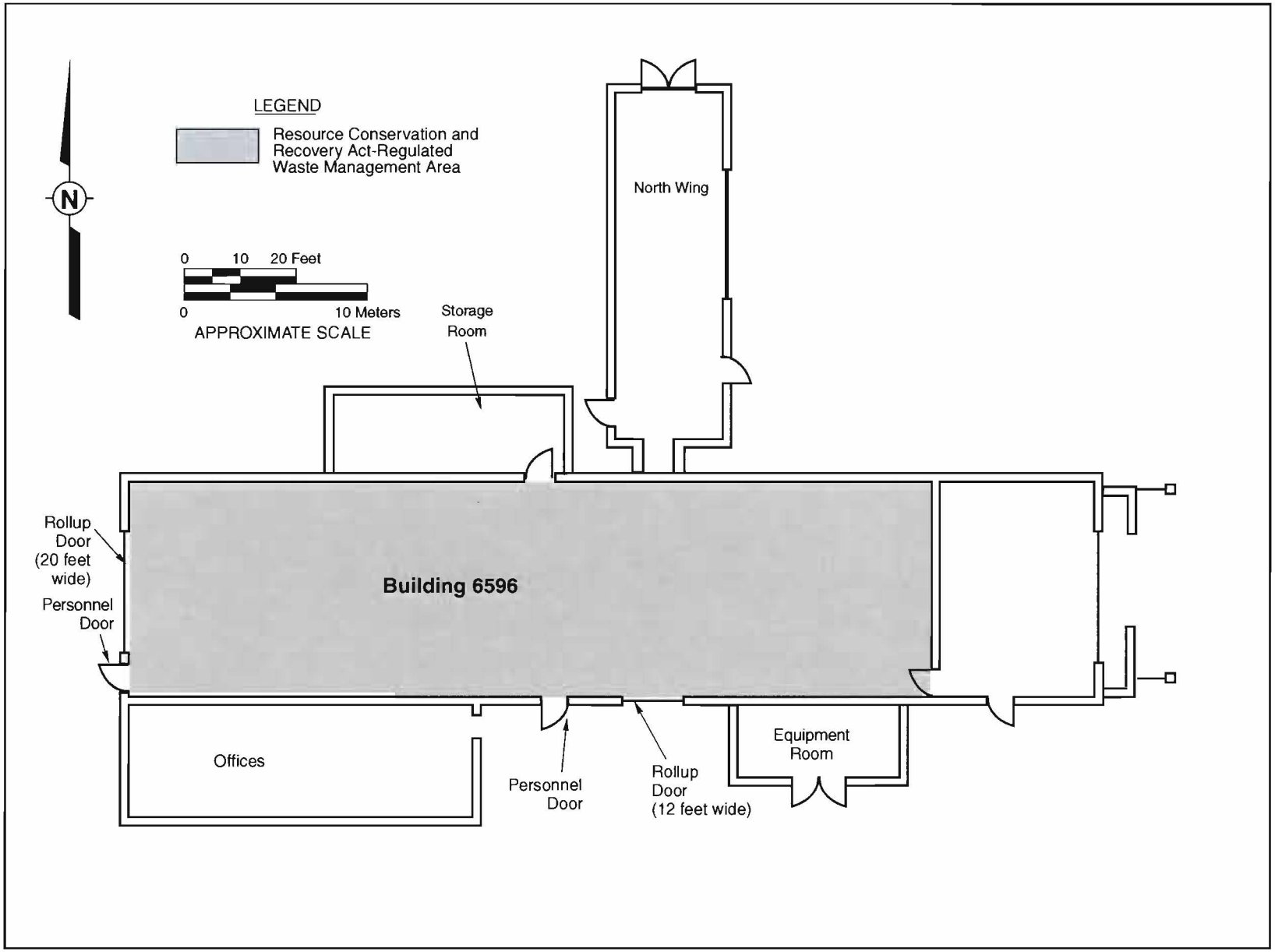


Figure B-~~14~~ 16
High Bay Waste Storage Facility,
Resource Conservation and Recovery Act-Regulated Waste Management Area

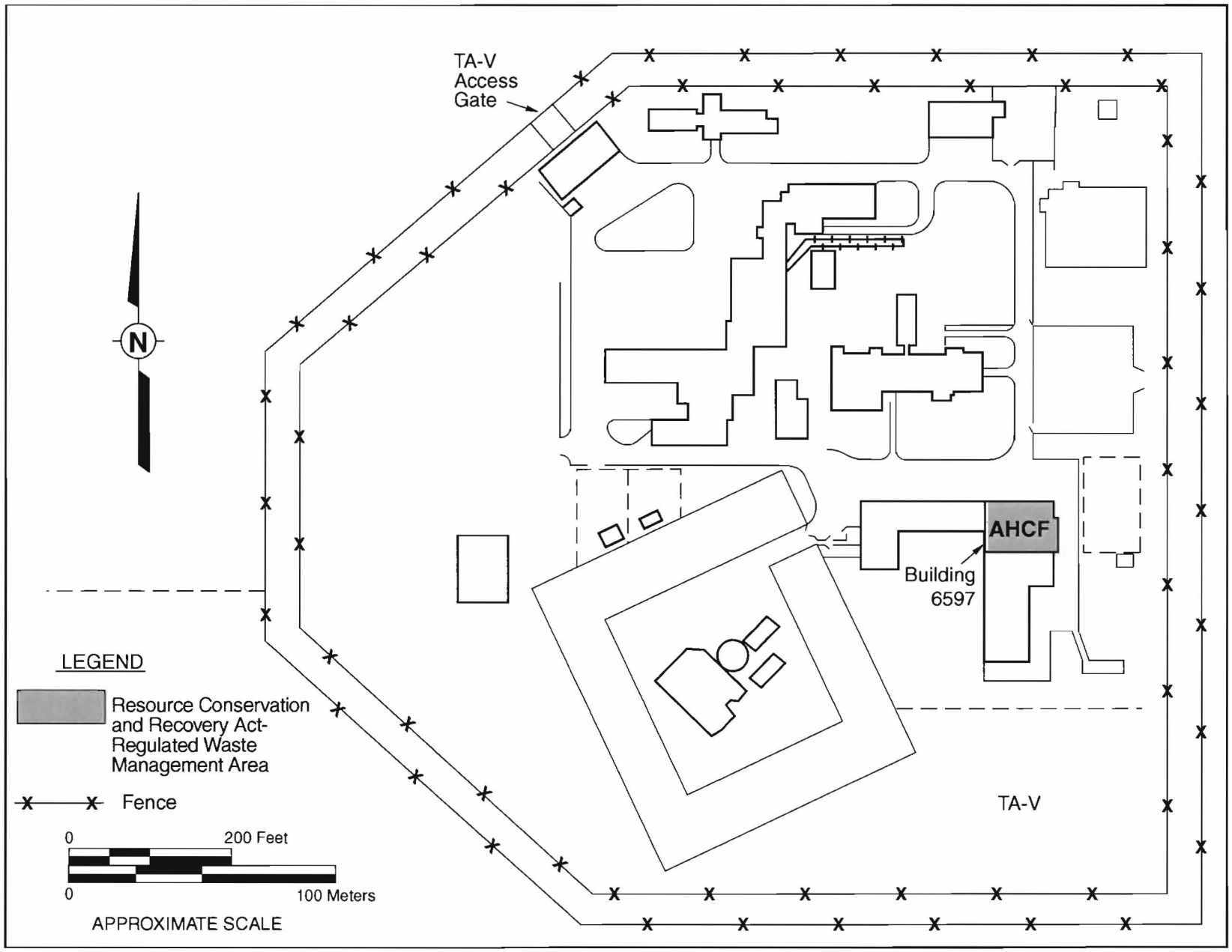
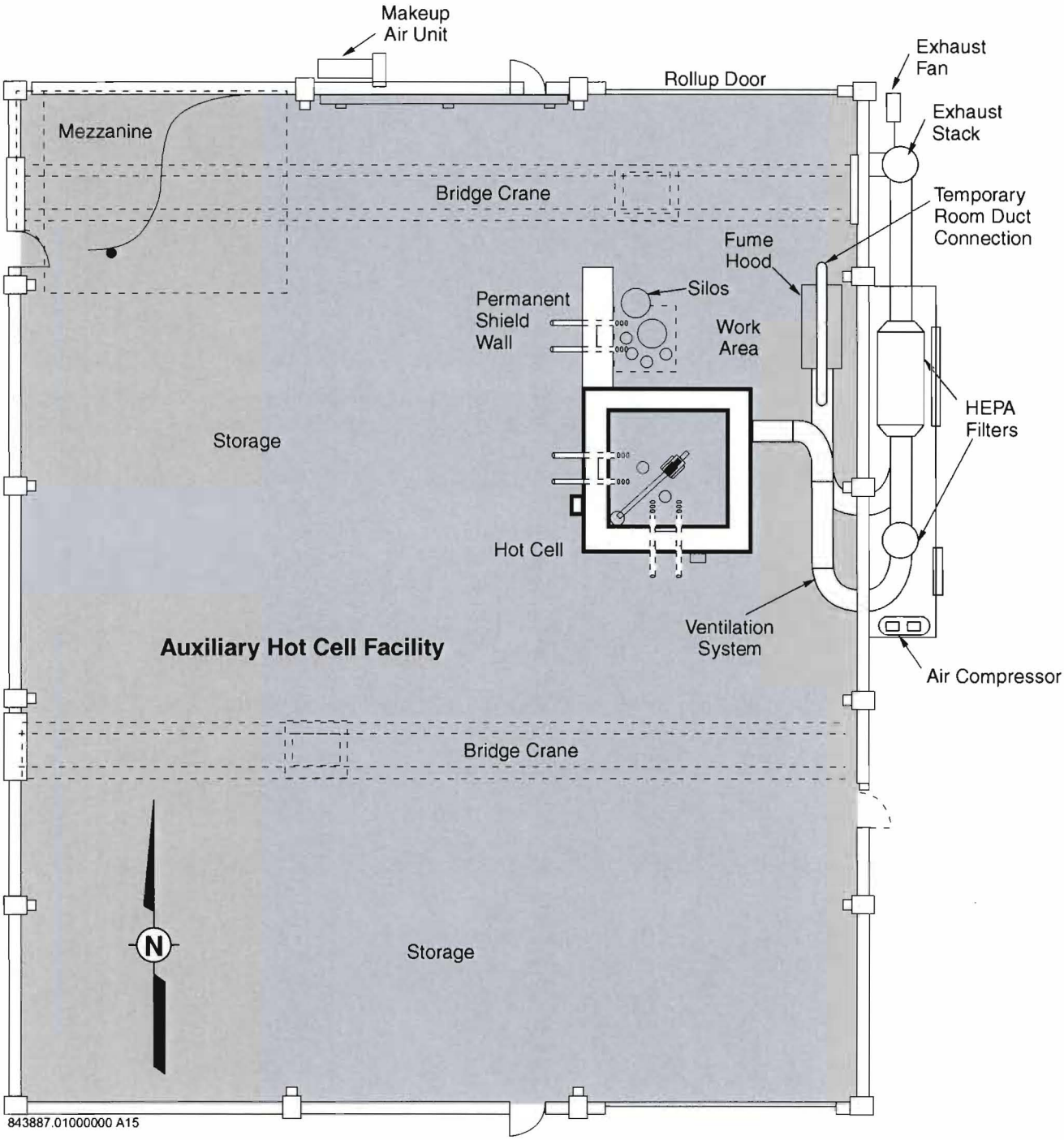


Figure B-~~15~~ 17
Location of the Auxiliary Hot Cell Facility (AHCF) in Technical Area (TA) V



APPROXIMATE SCALE

0 7.5 15

SCALE IN FEET

LEGEND

Resource Conservation and Recovery Act-Regulated Waste Management Area

Figure B-~~16~~ 18

Auxiliary Hot Cell Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas

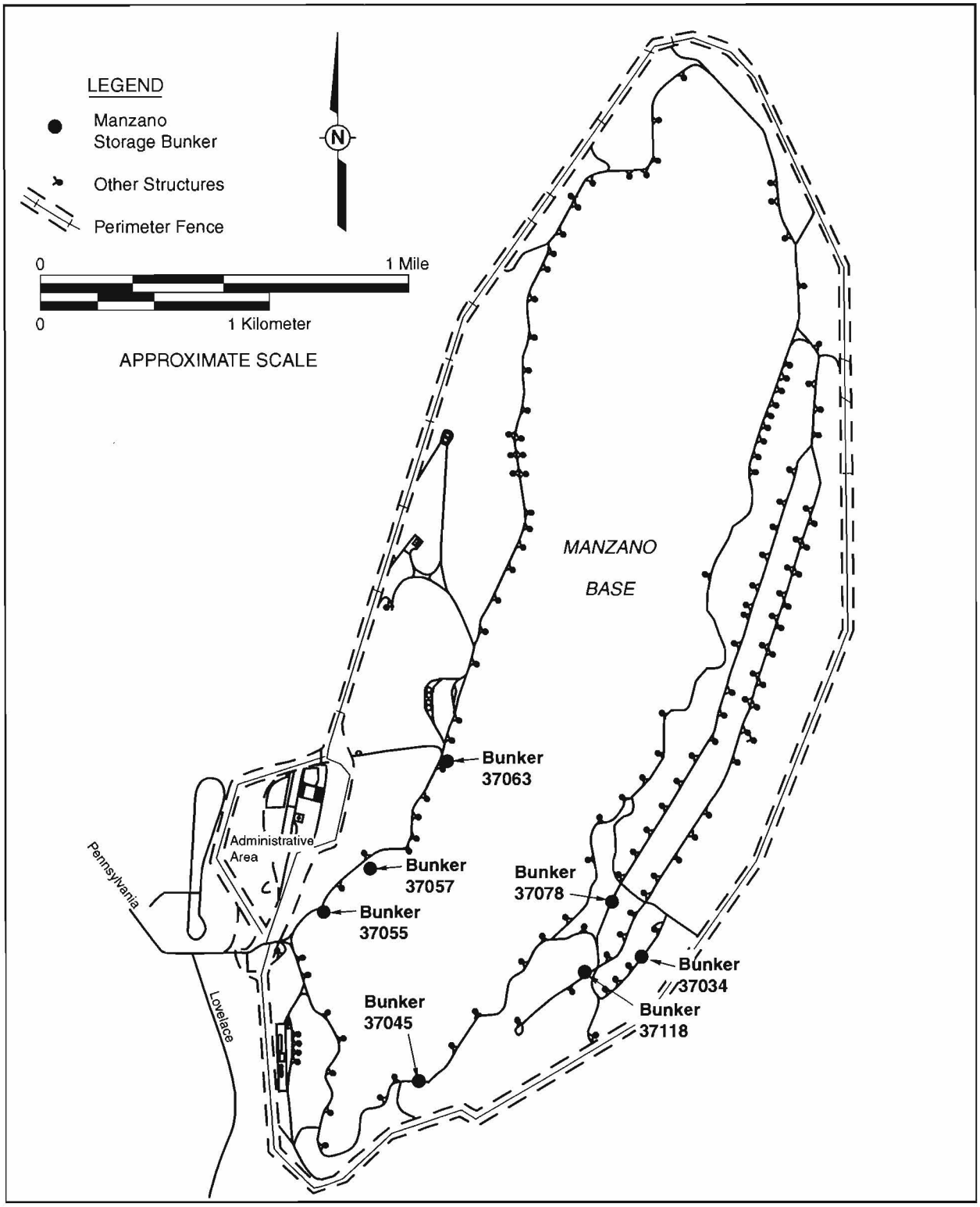
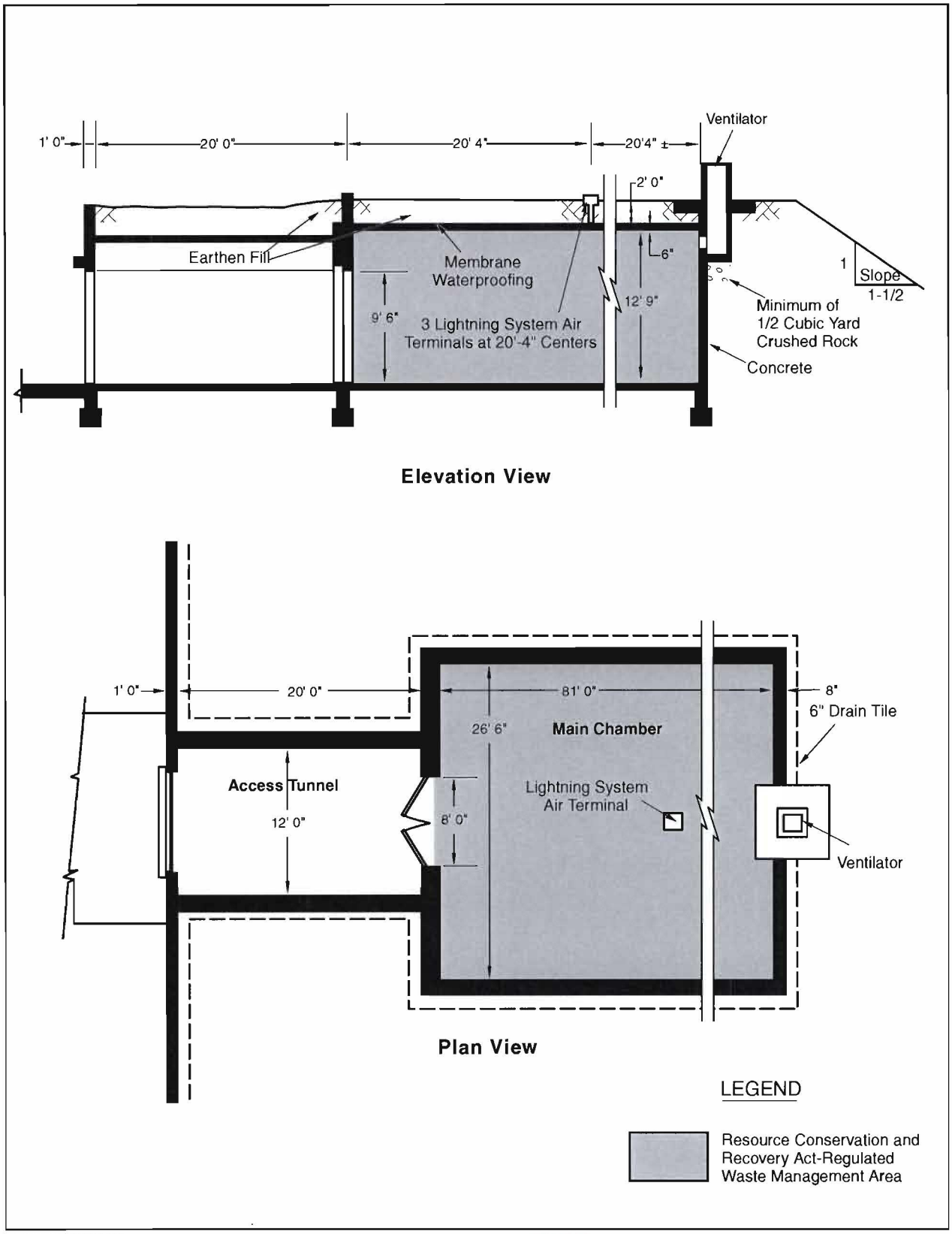


Figure B-~~17~~ 19

Location of the Manzano Storage Bunkers at Manzano Base



843887.01000000 A17

Figure B-~~18~~ 20
Manzano Storage Bunkers, Type B, Bunkers 37034 and 37063

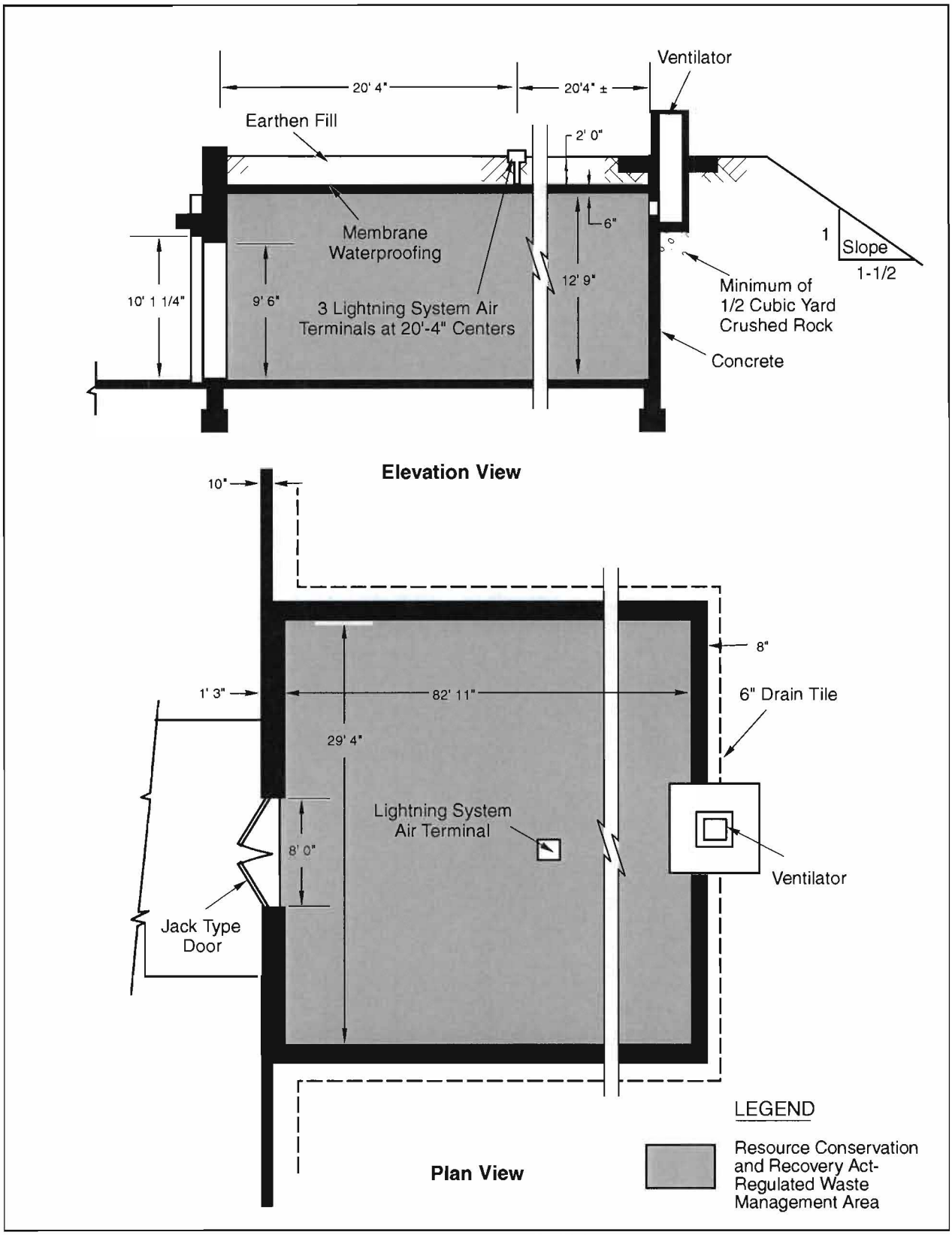


Figure B-~~19~~ 21
Manzano Storage Bunkers, Type C, Bunkers 37078 and 37118

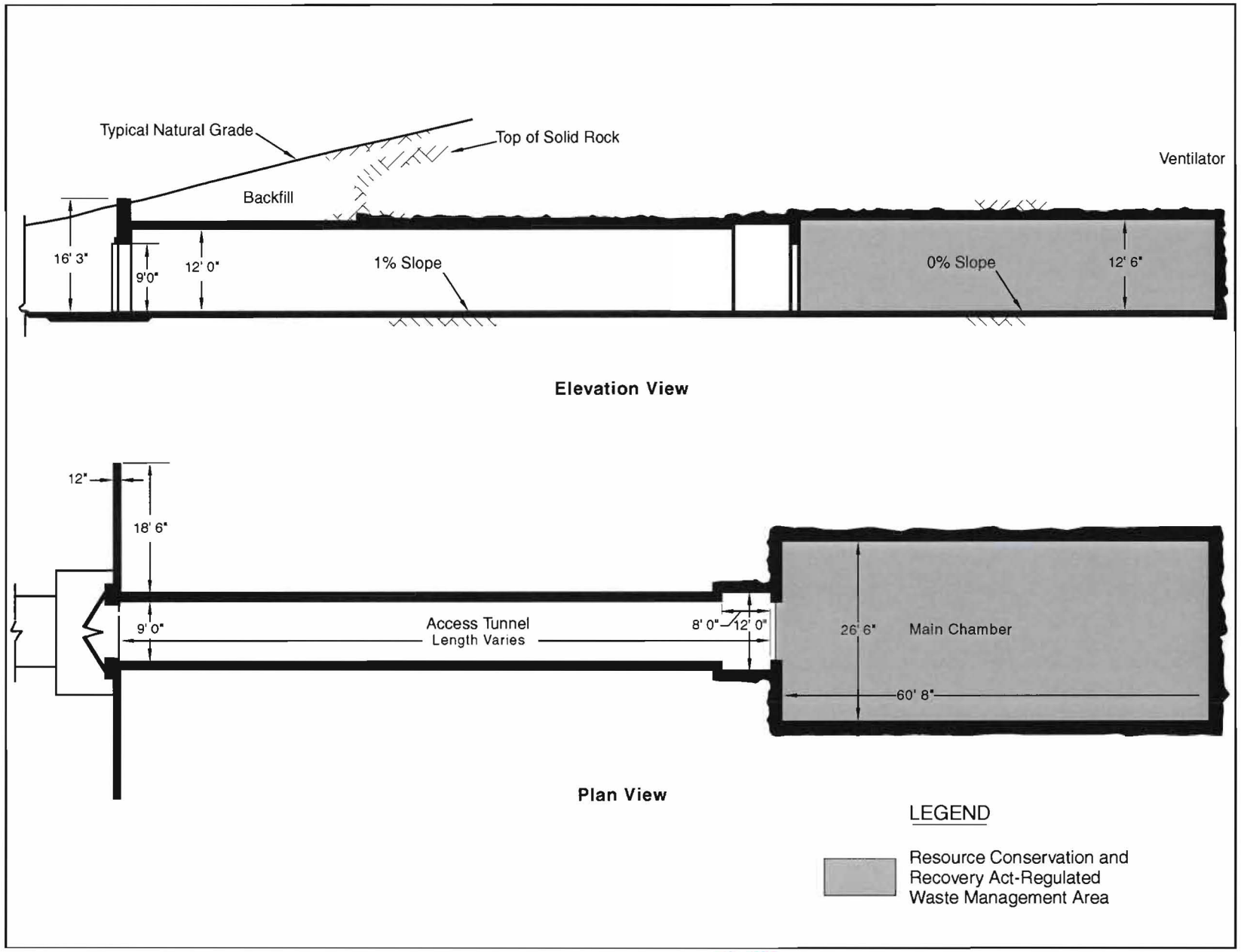


Figure B-~~20~~ 22
Manzano Storage Bunkers, Type D
Bunkers 37045, 37055, and 37057

PHOTOGRAPHS

Existing Radioactive and Mixed Waste Management Facility, East Side of Building 6920
Photograph Taken on December 5, 2001
Process Codes: S01, T04, ~~X02~~

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

Building 6920 will be modified and renovated to increase capacity. Modifications will include additional enclosed storage on the east end of the building. The addition will extend east as far as the wall of the existing work area on the left, and north to the existing edge of the building (on the right). The addition will be equipped with a rollup door and personnel door similar to the existing doors.

Existing Radioactive and Mixed Waste Management Facility, West Side of Building 6920
Photograph Taken on December 5, 2001
Process Codes: S01, T04~~, X02~~

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

Future CWMF modifications to Building 6920 include additional utility rooms (mechanical and electrical) on the west end of the building. The existing mechanical room is visible on the left, the additional room will extend to the west.

Existing Radioactive and Mixed Waste Management Facility, Building 6920, ~~Room 122~~ South Bay

Photograph Taken on December 20, 2001

Process Codes: S01, T04, ~~X02~~

~~The door to Room 118 is partially visible at the left edge of the picture. The doors to Rooms 119 and 120 are visible on the left beyond the door to Room 118. The roll-up door at the far end of the room leads to Room 125~~.

~~Containers of liquid RCRA-regulated waste are stored over the secondary containment sump shown on the right in the photograph. Containers of solid RCRA-regulated waste may also be stored over the sump~~.

The south bay of the existing RMWMF is used for storage of RCRA-regulated wastes in containers and for treatment. The doors to three of the four rooms in the south bay are visible at the left edge of the picture. Treatment operations typically occur in these rooms. The roll-up door at the far (east) end of the room leads to an additional storage/work area. Containers of liquid RCRA-regulated waste are stored over the secondary containment sump shown on the right in the photograph. Containers of solid RCRA-regulated waste may also be stored over the sump.

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

The south bay will be renovated to increase storage capacity for the future CWMF. The rooms on the left will be replaced with storage bays equipped with recessed secondary containment sumps. RCRA-regulated wastes will be stored on shelves in the bays.

Existing Radioactive and Mixed Waste Management Facility, Building 6921
Photograph Taken on December 5, 2001
Process Codes: S01, T04

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

Future CWMF modifications to Building 6921 include some modifications to the utility systems and will not affect waste management areas or waste management activities.

Existing Radioactive and Mixed Waste Management Facility, Building 6925
Photograph Taken on December 5, 2001
Process Codes: S01, T04

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

Future CWMF modifications to Building 6925 include some modifications to the utility systems and will not affect waste management areas or waste management activities.

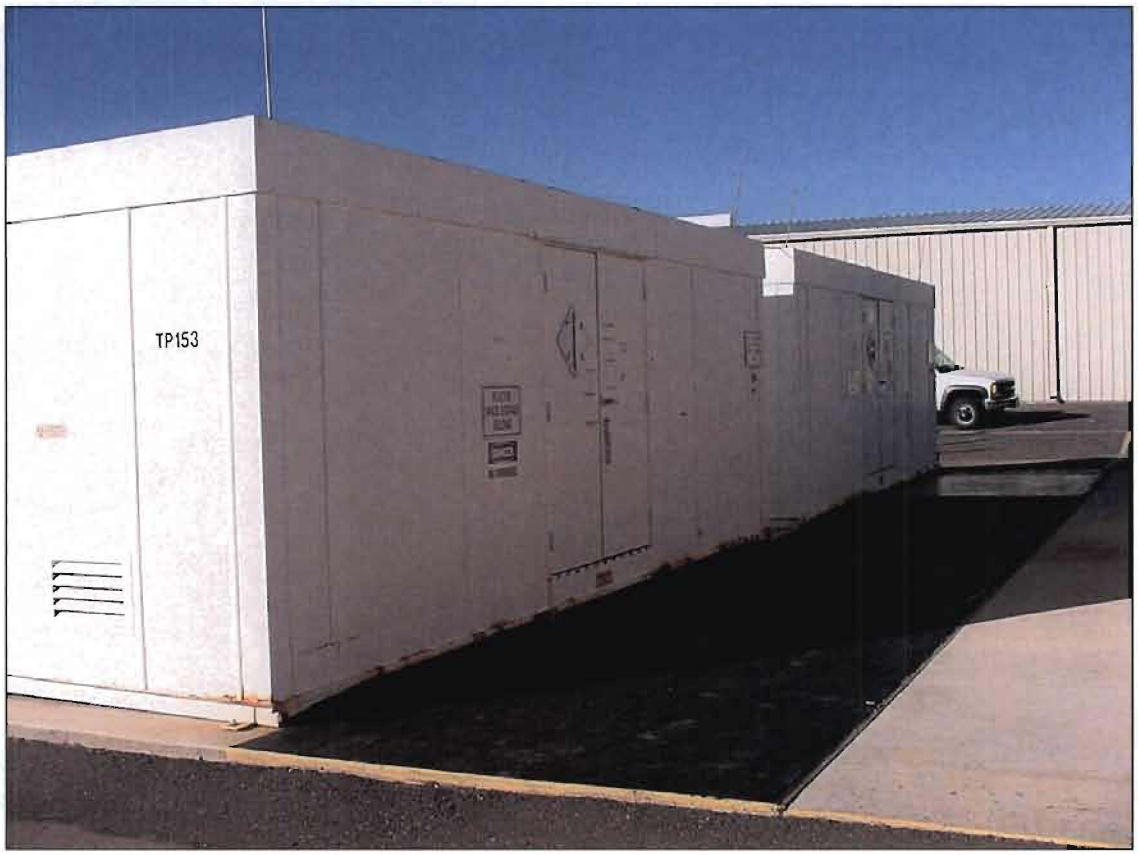
Existing Radioactive and Mixed Waste Management Facility, Building 6925, Interior
Photograph Taken on December 20, 2001
Process Codes: S01, T04

The drum in the front of the row on the right contains liquid RCRA-regulated waste and is stored on a portable spill containment pallet.

Existing Radioactive and Mixed Waste Management Facility, Building 6926
Photograph Taken on December 5, 2001
Process Codes: S01

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

Future CWMF modifications to Building 6926 include renovating the interior and modifying utility systems. The roll-up door and personnel doors visible in the photograph will be relocated to the east (right) end of the building. The modified building interior will contain seven separate storage bays equipped with secondary containment sumps.



Existing Radioactive and Mixed Waste Management Facility, Modular Storage Buildings
Photograph Taken on December 5, 2001
Process Code: S01

Sandia/DOE will physically modify the existing Radioactive and Mixed Waste Management Facility (RMWMF) between December 2004 and December 2007 to increase capacity. The modified facility will be called the Consolidated Waste Management Facility (CWMF). Current RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

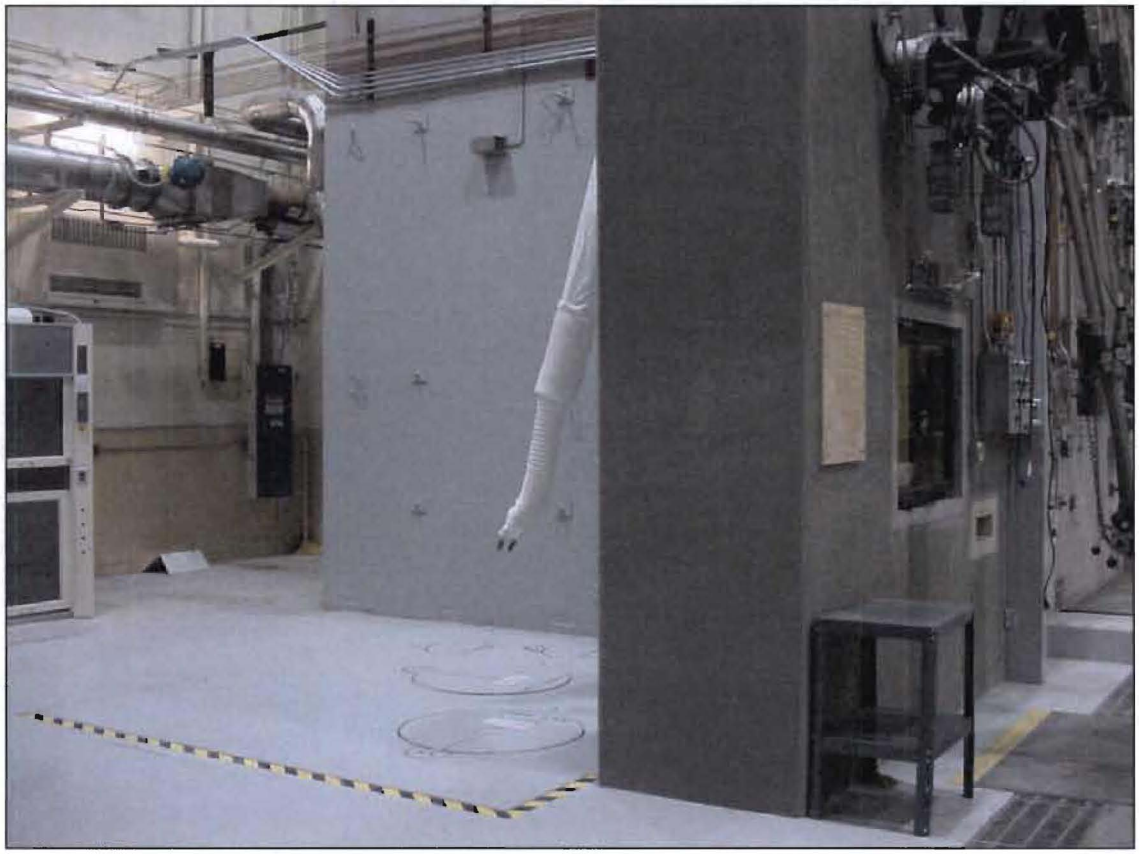
Future CWMF modifications include installation of two additional modular storage buildings, similar to the buildings shown here.

Auxiliary Hot Cell Facility, North Side of Building 6597
Photograph Taken on January 7, 2002
Process Codes: S01, T04~~, X02~~

The work area and permanent shield wall are visible inside the building.

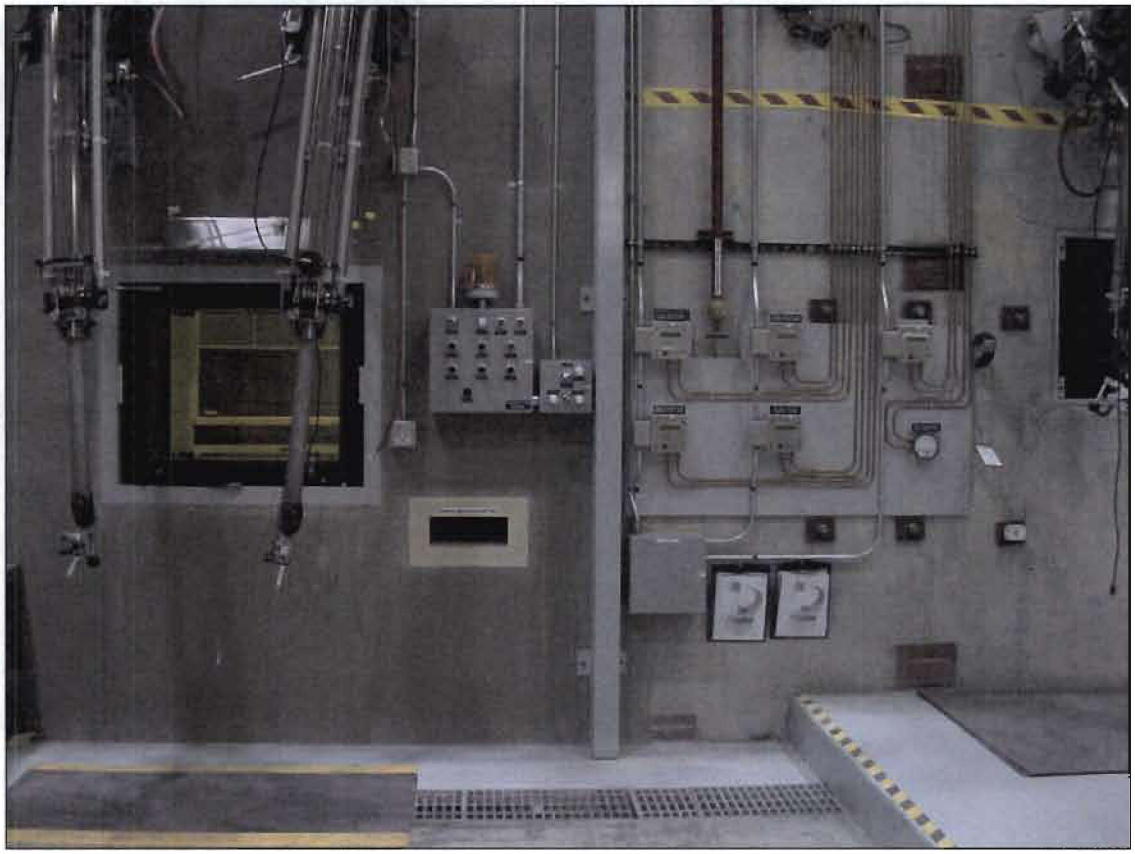
Auxiliary Hot Cell Facility, Work Area North of Auxiliary Hot Cell
Photograph Taken on January 7, 2002
Process Codes: S01, T04~~, X02~~

The permanent shield wall is visible inside the building at the right edge of the opening. The manipulator arms extend from the permanent shield wall into the work area. The north wall of the hot cell is visible behind the manipulator arms at the center of the picture. The fume hood is visible at the left edge of the work area.



Auxiliary Hot Cell Facility, Fume Hood and Work Area North of Auxiliary Hot Cell
Photograph Taken on January 7, 2002
Process Codes: S01, T04, ~~X02~~

One of the manipulator arms is visible. It extends from the permanent shield wall into the work area. The operator controls for the manipulator arms are on the right side (outside) of the permanent shield wall at the right edge of the picture. The fume hood is visible at the left edge of the picture. Covers of two storage silos are visible on the floor of the work area under the manipulator arm.



Auxiliary Hot Cell Facility, Operator Controls for Work Area and Hot Cell
Photograph Taken on January 7, 2002
Process Codes: S01, T04~~, X02~~

The permanent shield wall is on the left, and the hot cell is located on the right. The operator controls for the manipulator arms in the permanent shield wall are visible on the left. The fume hood at the back of the work area is visible through the shield wall window. Similar operator controls and a window are located on the hot cell wall to the right.

Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application

Revision 4~~3~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-iii
LIST OF FIGURES ..... SW-iv
LIST OF APPENDICES ..... SW-v
LIST OF MODULES ..... SW-vi
ACRONYMS AND ABBREVIATIONS ..... SW-vii
DEFINITIONS ..... SW-x
1.0 GENERAL SITE OPERATIONS SW-8
1.1 General Unit Operations SW-8
1.1.1 Operation of Containment Systems SW-8
1.1.2 Requirements for Ignitable, Reactive, and Incompatible Waste SW-9
1.1.2.1 Measures to Prevent Accidental Ignition or Reaction SW-9
1.1.2.2 Precautions to Prevent Uncontrolled Reactions SW-10
1.1.3 Preparedness and Prevention SW-11
1.1.3.1 Required Equipment SW-11
1.1.3.2 Testing and Maintenance of Equipment SW-12
1.1.3.3 Access to Communications or Alarm System SW-12
1.1.4 Hazards Prevention SW-13
1.1.4.1 Preventing Hazards in Unloading SW-13
1.1.4.2 Preventing Runoff or Flooding SW-13
1.1.4.3 Preventing Contamination of Water Supplies SW-14
1.1.4.4 Mitigating Effects of Equipment Failure and Power Outages SW-14
1.1.4.5 Preventing Undue Exposure SW-15
1.1.4.6 Preventing Releases to the Atmosphere SW-15
1.2 Container Storage SW-18
1.2.1 Container Types and Labeling SW-18
1.2.2 Container Handling SW-18
1.2.2.1 Condition of Containers SW-18
1.2.2.2 Aisle Space and Storage Configuration SW-19
1.2.2.3 Compatibility of Waste with Containers SW-19
1.2.2.4 Presence of Liquids in Containers SW-20
2.0 SITE DESCRIPTION SW-21
3.0 WASTE ANALYSIS PLAN SW-22
4.0 INSPECTION PLAN SW-23
5.0 PERSONNEL TRAINING PLAN SW-24
6.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN SW-25
7.0 CLOSURE PLAN SW-26
8.0 TREATMENT SW-27
8.1 Handling and Treatment of Unstable Wastes SW-27
8.2 Preventing Releases to the Atmosphere SW-27
9.0 RECORDKEEPING SW-30
9.1 Hazardous Waste Report SW-32
9.2 Unmanifested Waste Report SW-32
9.3 Additional Reports SW-33

TABLE OF CONTENTS (Concluded)

10.0 OTHER FEDERAL LAWS SW-34
11.0 CORRECTIVE ACTION SW-36
12.0 CERTIFICATION SW-37
13.0 REFERENCES SW-38

LIST OF TABLES

Table No.	Title
1	Resource Conservation and Recovery Act-Regulated Waste Management Units Included in Part 2 of Comprehensive Part B Permit Request
2	Regulatory References and Corresponding Permit Renewal Request/Application Location
3	Cultural Properties Used by Sandia/DOE on Kirtland Air Force Base

LIST OF FIGURES

Figure No.	Title
1	Sandia National Laboratories/New Mexico Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units in Relation to Kirtland Air Force Base

LIST OF APPENDICES

Appendix	Title
A	Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
B	Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
C	Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
D	Site-Wide Personnel Training Plan for Sandia National Laboratories/ New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
E	Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
F	Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

LIST OF MODULES

Module	Title
I	HWMF-Hazardous Waste Management Facility
II	TTF-Thermal Treatment Facility
III	RMWMF/CWMF-Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility
IV	Reserved
V	AHCF-Auxiliary Hot Cell Facility
VI	MSB-Manzano Storage Bunkers

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	microgram(s) per cubic meter
20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
A/BCAQCB	Albuquerque/Bernalillo County Air Quality Control Board
AHCF	Auxiliary Hot Cell Facility
ALARA	as low as reasonably achievable
ARPA	Archeological Resources Protection Act
ASTM	American Society for Testing and Materials
CMU	concrete masonry unit
CWMF	Consolidated Waste Management Facility
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DQO	data quality objective
DR	disposal request
EC	Emergency Coordinator
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ER	Environment Restoration
ERO	Emergency Response Organization
^{O}F	degree(s) Fahrenheit
ft	foot/feet

ACRONYMS AND ABBREVIATIONS (Continued)

ft^2	square foot/feet
ft^3	cubic foot/feet
HEPA	high efficiency particulate air
HSWA	Hazardous and Solid Waste Amendments
HWMF	Hazardous Waste Management Facility
IC	Incident Commander
ICS	Incident Command System
ID	inner diameter
in.	inch(es)
KAFB	Kirtland Air Force Base
KOP	knowledge of process
lb/ft^2	pound(s) per square foot/feet
LDR	land disposal restriction
m^3	cubic meter(s)
mi	mile(s)
mph	mile(s) per hour
MSB	Manzano Storage Bunkers
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NMED	New Mexico Environment Department
OKSO	Office of Kirtland Site Operations
ppmw	part(s) per million by weight

ACRONYMS AND ABBREVIATIONS (Concluded)

PPE	personal protective equipment
psi	pounds per square inch (pressure)
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
R&D	research and development
RMWMF	Radioactive and Mixed Waste Management Facility
Sandia	Sandia Corporation
SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	Technical Area
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USC	United States Code
USFS	U.S. Forest Service
VOC	volatile organic compound
WAP	waste analysis plan
WMA	waste management area

DEFINITIONS

Characterization: The identification of hazardous characteristics or constituents of waste, using sampling and analysis, acceptable knowledge, or a combination of chemical analysis and acceptable knowledge.

Emergency: Any imminent or existing fire, explosion, or unplanned sudden or nonsudden release of Resource Conservation and Recovery Act (RCRA)-regulated hazardous waste or hazardous waste constituents to air, soil, or surface water that significantly threatens human health or the environment outside the Unit.

RCRA-Regulated Waste: For the purposes of this permit renewal request/application and Unit-specific modules, a waste that meets the regulatory definition of either hazardous waste or hazardous/radioactive mixed waste.

RCRA-Regulated Waste Management Area (WMA): For the purposes of this permit renewal request/application and Unit-specific modules, an area used for the treatment or storage of RCRA-regulated waste within a RCRA-regulated Waste Management Unit.

RCRA-Regulated Waste Management Unit (Unit): For the purposes of this permit renewal request/application and Unit-specific modules, a specific operational area subject to a RCRA permit that is used for the treatment and/or storage of RCRA-regulated waste. The Units that are the subjects of this permit renewal request/application are described in Unit-specific modules.

Regulated Unit: A surface impoundment, waste pile, land treatment unit, or landfill that received hazardous waste after July 26, 1982.

SANDIA NATIONAL LABORATORIES/NEW MEXICO GENERAL PART B PERMIT RENEWAL REQUEST/APPLICATION

This "Sandia National Laboratories/New Mexico (SNL/NM) General Part B Permit Renewal Request/Application," hereinafter referred to as the ~~SNL/NM~~ General Part B, is submitted by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, to address requirements applicable to Resource Conservation and Recovery Act (RCRA)-regulated waste storage and treatment operations at SNL/NM RCRA-regulated waste management units (Units) (Figure 1). The U.S. Environmental Protection Agency (EPA) Identification Number for SNL/NM is NM5890110518.

Sandia National Laboratories/New Mexico (SNL/NM) is located on Kirtland Air Force Base (KAFB) southeast of Albuquerque, New Mexico. SNL/NM consists of five technical areas (TAs) and several remote testing areas situated on the 80-square-mile KAFB. Sandia generates and manages wastes that are regulated under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code (NMAC) Title 20, Chapter 4. In this comprehensive Part B permit request, these wastes are referred to as RCRA-regulated wastes (i.e., wastes that meet the regulatory definition of hazardous or mixed wastes). RCRA-regulated wastes are generated during SNL/NM operations and ongoing corrective actions for solid waste management units (SWMUs). The corrective actions are conducted under the SNL/NM Environmental Restoration (ER) Project.

There are 11~~2~~ RCRA-regulated waste management units (Units) included in this comprehensive Part B permit request. Nine of the Units (listed in Table 1) are used for management of wastes from ongoing operations and from the ER project. These units are addressed in this part (Part 2) of the comprehensive Part B permit request. One of t~~T~~he remaining ~~three~~ units is ~~are~~ a corrective action management unit~~s~~ (containment cell) used exclusively for management of remediation wastes generated through the ER project. It was closed in 2003. The other unit is a landfill that was operated under interim status and is undergoing closure. Sandia/DOE will conduct post-closure care and maintenance at the containment cell and the landfill; both Units ~~They~~ are addressed in Part 5 of the comprehensive Part B permit request. Three additional units will be undergoing closure under interim status and will not require post-closure care. They are ~~not~~ included in ~~this~~ Part 1~~(Part 2)~~.

The information in Part 2 is separated into site-wide and Unit-specific information to minimize redundancy. Part 2 information for the Units listed in Table 1 includes:

- General information (the General Part B) that serves as an "umbrella" document addressing the general requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised ~~June 14, 2000~~October 1, 2003 [~~6-14-00~~10-1-03]. 20 NMAC 4.1.500 and .900 adopt, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270). Information that is applicable to most or all of the Units is included in the ~~SNL/NM~~ General Part B.

  Appendices containing site-wide information addressing a specific topic (e.g., waste analysis, training, or closure).

Table 1
Resource Conservation and Recovery Act – Regulated Waste Management Units Included in Part 2 of Comprehensive Part B Permit Request

Name	Acronym	Location, Size	Types of Operations	Types of Waste	Operating Status	Permit Status
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. 1.35 acres	Storage, Repackaging	All wastes listed in General Part A	Existing, operational	Permit expired August 6, 2002. Submitted renewal request February 6, 2002. Requesting that permit be updated and renewed for continued operation.
Thermal Treatment Facility	TTF	Northern part of TA-III. 196 square feet	Treatment	Ignitable, reactive, toxic, and listed wastes	Existing, on standby	Permit expires November 4, 2004. Submitted renewal request February 6, 2002. Requesting that permit be updated and renewed for continued operation.
Radioactive and Mixed Waste Management Facility/ Consolidated Waste Management Facility[a]	RMWMF/ CWMF	Southeast corner of TA-III. 3.11 acres	Storage, Treatment, Repackaging	All wastes listed in General Part A	Existing, operational	Interim status. Requesting that permit be issued using updated information provided in this application.
Auxiliary Hot Cell Facility	AHCF	TA-V. 5578 square feet	Storage, Treatment, Repackaging	All wastes listed in General Part A	Existing, expected to start operations in 20053	Added under interim status. Requesting that permit be issued using information provided in this application.
Manzano Storage Bunkers (set of 5 Units)	MSB	In Manzano Area on KAFB. 0.4 acres occupied by 5 bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	All wastes listed in General Part A	Existing, operational	Interim status. Requesting that permit be issued using updated information provided in this application.

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

- Unit-specific Part B modules addressing Unit-specific requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [~~6-14-00~~10-1-03]. There is one module for the set of five Manzano Storage Bunkers, and one module for each of the other four Units listed in Table 1. For clarity and consistency, the information in each Unit-specific Part B module is arranged in the same general order as the information in the ~~SNL/NM~~ General Part B.

Together, the information in this General Part B, the appendices, and each Unit-specific Part B module address the applicable regulatory requirements for that Unit.

The information in this ~~SNL/NM~~ General Part B and in the Unit-specific modules is arranged as follows:

- General Unit description and operations, including preparedness and prevention – Section 1.0
- Site description, including features, security, and access control – Section 2.0 and Appendix A
- Waste analysis – Section 3.0 and Appendix B
- Inspections – Section 4.0 and Appendix C
- Training – Section 5.0 and Appendix D
- Emergency response and contingency plan – Section 6.0 and Appendix E
- Closure – Section 7.0 and Appendix F
- Treatment – Section 8.0
- Recordkeeping – Section 9.0

Sandia/DOE are also submitting a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7~~5~~.0" hereinafter referred to as the ~~SNL/NM~~ General Part A (SNL/NM, 200~~4~~3), with this General Part B. The General Part A is included as Part 1 of this comprehensive Part B permit request and serves as a companion document to this ~~SNL/NM~~ General Part B. The ~~SNL/NM~~ General Part A identifies the RCRA-regulated waste management operating Units at SNL/NM as of March 31, 2003, that are or will be subject to:

- 20 NMAC 4.1.500/40 CFR 264 [~~6-14-00~~10-1-03] and 20 NMAC 4.1.900/40 CFR 270 [~~6-14-00~~10-1-03]. These nine Units are listed in Table 1.
- 20 NMAC 4.1.600/40 CFR 265 [~~6-14-00~~10-1-03]. These three Units will be closed under interim status and are not included in this General Part B.

In the General Part A, this General Part B, the appendices, and the Unit-specific modules, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., the Hazardous Waste Management Facility). The term "facility," as it appears in this context, is used only to denote building or Unit names and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03]. However, pursuant to 20 NMAC

4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

In the~~is~~ Waste Analysis Plan (Appendix B)~~WAP~~ and in the rest of this~~e~~ General Part B, the personnel associated with a RCRA-regulated waste at a given point during management at SNL/NM may sometimes be referred to as the "generator" (e.g., the "generator" completes a disposal request). The term "generator," as it appears in this context, is used only to denote an individual person and does not imply the regulatory meaning of "generator" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03], particularly with respect to hazardous ~~RCRA-regulated~~ waste determination as required in 20 NMAC 4.1.300/40 CFR 262.11 [~~6-14-00~~10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03], Sandia Corporation is a "generator" and a "person" responsible for determining whether a waste is subject to regulation in accordance with 20 NMAC 4.1.300/40 CFR 262.11 [~~6-14-00~~10-1-03]. SNL/NM is a large research facility, and many individuals (including those employed through contract to Sandia Corporation) are involved with generation and subsequent management of RCRA-regulated wastes. These include personnel performing research and other waste-generating activities, and personnel performing environment, safety, and health activities (including waste management) to support Sandia operations and comply with regulatory requirements. Hazardous~~RCRA-regulated~~ waste determination at SNL/NM is a collaborative effort between the individuals involved with the generation of RCRA-regulated waste and the Unit personnel. This approach is consistent with the process described in EPA's clarifying memo (Cotsworth, 2002).

Table 2 provides a list of regulatory references and the corresponding section locations in this ~~SNL/NM~~ General Part B.

Table 2
Regulatory References and Corresponding
Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§270.14(b)(1)	General facility description	Appendix A[a]
§270.14(b)(2)	Chemical and physical analyses	Appendix B[a]
§270.14(b)(3)	Waste analysis plan	Appendix B[a]
§264.13(b)	Written waste analysis plan	Appendix B[a]
§264.13(c)	Off-site waste analysis requirements	Appendix B[a]
§270.14(b)(4)	Security procedures and equipment	Appendix A[a]
§264.14	Security	Appendix A[a]
§270.14(b)(5)	General inspection schedule	Appendix C[a]
§264.15(b)	Written inspection schedule	Appendix C[a]
§264.174	Containers	1.2, Appendix C[a]
§264.602	Miscellaneous units	Appendix C[a]
§264.1086	Standards: Containers	1.2, Appendix C
§264.1088	Inspection and monitoring requirements	4.0, Appendix C[a]
§270.14(b)(6)	Request for waiver from preparedness and prevention requirements of Part 264, Subpart C	NA
§270.14(b)(7)	Contingency plan	Appendix E[a]
§270.14(b)(8)	Preparedness and prevention requirements	1.1.3[a], 1.1.4[a]
§270.14(b)(8)(i)	Preventing hazards in unloading operations	1.1.4.1[a]
§270.14(b)(8)(ii)	Preventing runoff/flooding	1.1.4.2[a]
§270.14(b)(8)(iii)	Preventing contamination of water supplies	1.1.4.3[a]
§270.14(b)(8)(iv)	Mitigating effects of equipment failure and power outages	1.1.4.4[a]
§270.14(b)(8)(v)	Preventing undue exposure of personnel	1.1.4.5[a]
§270.14(b)(8)(vi)	Preventing releases to the atmosphere	1.1.4.6[a]
§270.14(b)(9)	Preventing accidental ignition or reaction	1.1.2.1[a]
§264.17	General requirements for ignitable, reactive, or incompatible wastes	1.1.2[a]
§270.14(b)(10)	Traffic pattern, volume, and controls	Appendix A[a]
§270.14(b)(11)	Facility/unit location information	Appendix A[a]
§270.14(b)(11)(i)	Seismic standard applicability [264.18(a)]	Appendix A[a]
§264.18(a)	Seismic considerations	Appendix A
§270.14(b)(11)(ii)	Seismic standard requirements	Appendix A[a]
§264 Appendix VI	Political jurisdictions requiring compliance with 264.18(a)	Appendix A
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	Appendix A[a]
§270.14(b)(11)(iii)	100-year floodplain standard	Appendix A
§270.14(b)(11)(iv)	Floodplain requirements	NA
§270.14(b)(11)(v)	Plan to show how the facility will be brought into compliance with 264.18(b)	NA
§270.14(b)(12)	Personnel training program	Appendix D[a]

Refer to footnotes at end of table.

Table 2 (Continued)
Regulatory References and Corresponding
Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§264.16	Personnel training	Appendix D[a]
§270.14(b)(13)	Closure and post-closure plans	Appendix F[a]
§264.112	Closure plan	Appendix F[a]
§264.118	Post-closure plan	Appendix F[a]
§264.178	Closure—containers	Appendix F[a]
§264.601	Environmental performance standards—miscellaneous units	Module II
§264.603	Post-closure care—miscellaneous units	Appendix F
§270.14(b)(14)	Post-closure notices (264.119)	Appendix F
§264.119	Post-closure notices	Appendix F
§270.14(b)(15)	Closure cost estimate (264.142)	Appendix F
	Financial assurance (264.143)	Appendix F
§264.142	Cost estimate for closure	Appendix F
§264.143	Financial assurance for closure	Appendix F
§270.14(b)(16)	Post-closure cost estimate (264.144)	Appendix F
	Post-closure care financial assurance (264.145)	Appendix F
§264.144	Cost estimate for post-closure care	Appendix F
§264.145	Financial assurance for post-closure care	Appendix F
§270.14(b)(17)	Liability insurance (264.147)	Appendix F
§264.147	Liability requirements	Appendix F
§270.14(b)(18)	Proof of financial coverage (264.149-150)	Appendix F
§270.14(b)(19)	Topographic map requirements	Appendix A[a]
§270.14(b)(19)(i)	Map scale and date	Appendix A[a]
§270.14(b)(19)(ii)	100-year floodplain area	Appendix A[a]
§270.14(b)(19)(iii)	Surface waters	Appendix A[a]
§270.14(b)(19)(iv)	Surrounding land uses	Appendix A[a]
§270.14(b)(19)(v)	Wind rose	Appendix A[a]
§270.14(b)(19)(vi)	Map orientation/north arrow	Appendix A[a]
§270.14(b)(19)(vii)	Legal boundaries	Appendix A[a]
§270.14(b)(19)(viii)	Access controls	Appendix A[a]
§270.14(b)(19)(ix)	Wells (injection and withdrawal)	Appendix A
§270.14(b)(19)(x)	Buildings or other structures	Appendix A
§270.14(b)(19)(xi)	Barriers—drainage or flood control	Appendix A[a]
§270.14(b)(19)(xii)	Location of operational units	Appendix A
§270.14(b)(20)	Other federal laws (270.3)	10.0
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(b)(22)	Summary of pre-application meeting	Overview
§270.14(c)	Groundwater monitoring requirements	Appendix A[b]
§264.90(b)	Exemptions from regulation of releases	NA
§270.14(d)	Information requirements for solid waste management units	11.0[c], Part 4
§270.15	Specific information requirements—containers	1.2[a]
§264.170	Subpart I applicability	1.1[a]

Refer to footnotes at end of table.

Table 2 (Concluded)
Regulatory References and Corresponding Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§264.175	Containment	1.1, 1.2[a]
§264.176	Special requirements for ignitable or reactive waste	1.1.2[a]
§264.177	Special requirements for incompatible waste	1.1[a]
§264.17	General requirements for ignitable, reactive, or incompatible wastes	1.1[a]
§270.23	Specific information requirements—miscellaneous units	Module II[a]
§264.600	Subpart X applicability	Module II
§264.601	Environmental performance standards	Module II
§264.602	Monitoring analysis, inspection, response, reporting, and corrective action	Module II
§270.27	Specific information requirements—air emission controls for tanks, surface impoundments, and containers	1.1, 1.2[a]
§264 Subpart AA	Air emission standards for process vents	1.1.4.6
§264 Subpart BB	Air emission standards for equipment leaks	1.1.4.6
§264 Subpart CC	Air emission standards for tanks, surface impoundments, and containers	1.1.4.6

[a] Unit-specific information is provided in Unit-specific modules.
[b] Groundwater monitoring for regulated units is addressed in Part 3 of this comprehensive Part B permit request package.
[c] Corrective action is addressed in Parts 4 and 5 of this comprehensive Part B permit request package. Solid waste management units are discussed in Part 4. Operation of the waste management units associated with corrective action is addressed in Part 5.
NA = not applicable

1.0 GENERAL SITE OPERATIONS

This section provides an overview of management activities involving RCRA-regulated wastes ~~management operations~~ at the Units addressed in this ~~SNL/NM~~ General Part B.

The SNL/NM Units are used to store and/or treat RCRA-regulated wastes bearing EPA Hazardous Waste Numbers listed in the ~~SNL/NM~~ General Part A. Unless otherwise specified in a Unit-specific module, any of the wastes listed in the ~~SNL/NM~~ General Part A may be managed at any Unit.

The following general information applicable to the Units addressed in this ~~SNL/NM~~ General Part B is provided in this section:

- General Unit operations; containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and
- Container storage practices, including air emission controls. Sandia/DOE do not manage RCRA-regulated wastes in tanks at any Unit.

The general information provided in this section, together with the Unit-specific information provided in Modules I through VI, address the applicable hazardous ~~RCRA-regulated~~ waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264 [~~6-14-00~~10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14, 270.15, and 270.23 [~~6-14-00~~10-1-03].

1.1 General Unit Operations

The following sections provide an overview of the general Unit operations applicable to the Units addressed in this ~~SNL/NM~~ General Part B. General Unit operations include containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; and hazards prevention.

1.1.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15(a)(5); 20 NMAC 4.1.500/40 CFR 264.175[b][5])

20 NMAC 4.1.500/40 CFR 264.175(b)(1) [~~6-14-00~~10-1-03] requires that containment systems be maintained in leak proof and fully operable conditions. 20 NMAC 4.1.500/40 CFR 264.175(b)(2) and (3) [~~6-14-00~~10-1-03], respectively, require that secondary containment systems be designed to: 1) contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater;~~,~~ and 2) prevent contact between containers and spilled material. 20 NMAC 4.1.500/40 CFR 264.175(b)(4) requires that run-on and run-off be prevented. These features of containment systems at each Unit are described in Section 1.0 of each Unit-specific module.

20 NMAC 4.1.500/40 CFR 264.175(b)(5) requires that secondary containment systems be managed to prevent overflow. Liquids that might accumulate at an SNL/NM Unit are contained within a secondary containment system, as described in each Unit-specific module. The

containment system is sufficiently impervious to contain leaks, spills, or accumulated precipitation until the liquid is removed, as described below.

Unit personnel begin taking action to evaluate and remove accumulated liquids upon discovery to prevent overflow. Personnel evaluate the liquids for two purposes: to determine the most appropriate method of removing the liquid from the containment; and to characterize the removed liquid for appropriate further management.

Personnel attempt to find the source of liquids that accumulate in secondary containment for stored containers of RCRA-regulated wastes. If the source can be clearly identified (e.g., a leaking container in a small secondary containment area) personnel characterize the liquid based on knowledge of the source, as described in Appendix B, Section B.1.3.12, remove it, and manage it appropriately. If the source(s) cannot be identified, personnel may sample the liquid and characterize it as needed to determine the most appropriate method of removing the liquid from the containment. The liquid is then pumped into containers or collected onto absorbent material, picked up, and placed in containers. The containerized liquid is sampled and analyzed for the parameters listed in Appendix B, Table B-2 to characterize it for further management.

Accumulated liquids or waters generated during fire suppression activities may be characterized as a newly-generated waste using acceptable knowledge or may be analyzed, as applicable, for hazardous~~RCRA-regulated~~ waste constituents known to be components of the wastes involved in the fire. In either case, the liquids will be characterized using the process described above. Containers of collected liquids are also stored with adequate secondary containment.

Accumulated liquids from precipitation or snowmelt, for which there is no evidence of a release, will be discharged to the ground or to the sanitary sewer after sampling (as needed) and approval, as needed.

1.1.2 Requirements for Ignitable, Reactive, and Incompatible Waste (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[d]; 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

20 NMAC 4.1.900/40 CFR 270.14(b)(9) [~~6-14-00~~10-1-03], requires a description of precautions taken to prevent accidental ignition or reaction of ignitable, reactive, or incompatible RCRA-regulated wastes as required to demonstrate compliance with 20 NMAC 4.1.500/40 CFR 264.17(c) [~~6-14-00~~10-1-03]. 20 NMAC 4.1.900/40 CFR 270.15(d) [~~6-14-00~~10-1-03], requires a description of procedures used to ensure compliance with 20 NMAC 4.1.500/40 CFR 264.17(b) and (c) [~~6-14-00~~10-1-03], and 264.176 and 264.177.

1.1.2.1 Measures to Prevent Accidental Ignition or Reaction (20 NMAC 4.1.500/ 40 CFR 264.17[a])

At SNL/NM, appropriate measures are taken to prevent accidental ignition or reaction of ignitable and reactive RCRA-regulated wastes, as described below.

All containers are kept closed unless wastes are being added, removed, inspected, sampled, repackaged, or treated as noted in Section 1.2.2.

Ignitable and reactive wastes are labeled and separated from other wastes. Such wastes may be stored in designated WMAs at each Unit, as described in the Unit-specific modules. Open flames and welding activities are prohibited in the vicinity of ignitable or reactive wastes at all Units. If the wastes cannot be removed from the area before such activities take place, the wastes are protected by a non-combustible barrier before and during work. Hot surfaces, frictional heat, sources of sparks, and radiant heat (e.g., heat-generating wastes) are also prohibited in the vicinity of ignitable and reactive wastes. Unit personnel are not allowed to operate forklifts or other motorized equipment in the vicinity of open containers of ignitable or reactive wastes unless such equipment is designed for use in flammable environments.

Spark-proof tools may be used to open and close containers holding ignitable or reactive wastes. When large quantities of flammable or reactive liquids are transferred from one container to another, grounding procedures are typically used. During such operations, each container is connected to a grounding cable that remains in place during liquid transfer to dissipate static charge created by liquid flow.

Smoking is not allowed within any Unit. "No Smoking" signs are conspicuously placed at the entrance to each Unit, as required by 20 NMAC 4.1.500/40 CFR 264.17(a) [~~6-14-00~~10-1-03].

Ignitable and reactive wastes are stored under controlled conditions as needed to prevent spontaneous combustion. For example, pyrophoric wastes (liquids or solids that can ignite in contact with air without an external ignition source) are stored in closed containers under oil or other inert liquid, or in sealed containers under an inert gas, to prevent contact with air and moisture.

Water-reactive wastes may be ~~are not~~ stored in WMAs equipped with automatic water sprinkler systems. When water-reactive wastes are present in such WMAs~~ (e.g. for treatment or temporary staging)~~, Unit personnel will isolate the wastes with water-resistant barriers such as cabinets or overpack drums to keep water from coming into contact with the waste.

Buildings and areas where operations include open containers of ignitable or reactive wastes are equipped with intrinsically safe (spark-proof) electrical systems. All other buildings are equipped with electrical systems that meet applicable codes (e.g., storage of hazardous materials).

1.1.2.2 Precautions to Prevent Uncontrolled Reactions (20 NMAC 4.1.500/40 CFR 264.17[b, c], 40 CFR 264.176, 40 CFR 264.177 and 40 CFR 264.17[b])

Unit personnel rarely mix incompatible wastes together or with other materials. Personnel perform treatment of ignitable and reactive wastes at the TTF, existing RMWMF/future CWMF, and AHCF. As described in Section 8.0 of Modules II, III, and V, Unit personnel plan such activities carefully to prevent reactions that could:

- Generate extreme heat or pressure, fire or explosions, or violent reaction;
- Produce uncontrolled toxic mists, fumes, dusts, or gases;

- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- Damage the structural integrity of the device or Unit;
- Through other like means, threaten human health or the environment.

In general, Unit personnel use characterization information for each waste (as described in Section B.3) and published data regarding chemical properties of hazardous waste~~RCRA-regulated~~ constituents in the wastes (e.g., material safety data sheets [MSDSs], "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994], *Bretherick's Handbook of Reactive Chemical Hazards,* Urben, 1995) to identify potential consequences of treatment or other mixing activities. Additional information is included in each Unit-specific module.

Incompatible wastes are kept separated from each other during storage to meet the requirements of 20 NMAC 4.1.500/40 CFR 264.177(c) [~~6-14-00~~10-1-03]. Incompatible wastes are not packed in the same container, and no waste is placed in a container that previously held an incompatible waste (i.e., only new and/or clean containers are used to hold RCRA-regulated wastes), as required by 20 NMAC 4.1.500/40 CFR 264.177(a) and (b) [~~6-14-00~~10-1-03], 20 NMAC 4.1.500/40 CFR 264.17(b), and 20 NMAC 4.1.900/ 40 CFR 270.15(d) [~~6-14-00~~10-1-03]. Additional information is included in the Unit-specific modules.

Compatibility is determined in accordance with 20 NMAC 4.1.500/40 CFR 264, Appendix V [~~6-14-00~~10-1-03], or equivalent information (e.g., NIOSH Pocket Guide to Chemical Hazards).

Containers holding ignitable or reactive wastes are located at least 50 feet from the SNL/NM facility property line at all times and are protected from sources of ignition or reaction as required by 20 NMAC 4.1.500/40 CFR 264.176 [~~6-14-00~~10-1-03].

1.1.3 Preparedness and Prevention (20 NMAC 4.1.900/40 CFR 270.14(b)(8) and 20 NMAC 4.1.500/40 CFR 264, Subpart C)

20 NMAC 4.1.900/40 CFR 270.14(b)(8) [~~6-14-00~~10-1-03], and 20 NMAC 4.1.500/40 CFR 264, Subpart C [~~6-14-00~~10-1-03], require a description of how Units will comply with preparedness and prevention requirements. The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems.

1.1.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Sandia/DOE maintain required equipment, including internal communications or alarm systems; devices to summon emergency assistance; fire control, spill control, and decontamination equipment; and adequate water volume and pressure for fire suppression equipment at each Unit.

Each Unit (except the TTF and MSB) is equipped with one or more automatic water sprinkler or dry chemical fire suppression systems. Building-specific fire suppression systems are described in Section 1.2 of each Unit-specific module.

Each Unit (except the MSB) is equipped with fire hydrants. The locations of the hydrants are shown in each Unit-specific module. Each fire hydrant meets the requirements of the Appendix B of the International Fire Code, and provides at least 1500 gallons per minute of water at 20 psi, which meets the requirements of 20 NMAC 4.1.500/40 CFR 264.32(d) [~~6-14-00~~10-1-03].

A list of the required equipment, with the location and capabilities of the equipment, is provided in tables in each Unit-specific module.

1.1.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Sandia/DOE assure that communications and alarm systems and fire protection, spill control, and decontamination equipment are inspected and/or tested according to the inspection plans and schedules detailed in Appendix C of this ~~SNL/NM~~ General Part B and in Section 4.0 of each Unit-specific module. The frequency of inspection is sufficient to assure proper operation in the event of an emergency. Maintenance, repair, and replacement of emergency equipment are performed as needed.

Sandia personnel test fire suppression equipment on monthly, quarterly, and annual schedules, based on National Fire Protection Association (NFPA) 25 “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” (NFPA, 2002). Monthly tests typically include visual checks of valves and pressure gages. Quarterly tests typically include checks of water flow, switches, and alarms. Annual activities typically include valve inspection and maintenance.

1.1.3.3 Access to Communications or Alarm System (20 NMAC 4.1.500/40 CFR 264.34)

Sandia/DOE assure that whenever waste is being handled at a Unit, personnel involved have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, this communication equipment allows personnel to contact the Unit Emergency Coordinator and/or the Emergency Operations Center (refer to Appendix E of this ~~SNL/NM~~ General Part B). In addition to the communications and alarm systems described in each Unit-specific module, on-site personnel may carry pagers, two-way radios, and/or cellular telephones so that they can contact or be contacted by on-site and SNL/NM emergency support personnel at all times.

Unit personnel typically work in pairs and maintain contact when handling wastes, further enhancing safety.

1.1.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

SNL/NM Units are designed and operated to prevent hazards, i.e., to minimize the possibility of fire, explosion, or any unplanned or nonsudden releases of hazardous~~RCRA-regulated~~ waste or constituents to the environment. Specific Unit design and construction information is presented in Section 1.1 of each Unit-specific Part B module. The following sections describe the general procedures, equipment, and structures that are currently used at SNL/NM Units to prevent hazards. These include preventing hazards during unloading of waste containers, preventing runoff and flooding, preventing contamination of water supplies, mitigating the effects of power outages, preventing undue exposure to personnel, and preventing releases to the atmosphere. Any additional information about procedures is included in Section 1.2 of each Unit-specific module.

1.1.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

Only closed waste containers are accepted for transport by vehicle to SNL/NM Units. Prior to transport, containers are inspected to ensure that they are properly closed, labeled, and in suitable condition for transport.

Loading and unloading operations typically occur outdoors in the area immediately in front of a WMA at a Unit to minimize the distance that the waste must be moved. Spills that might occur during loading or unloading operations will be promptly cleaned up in accordance with spill response procedures contained in Appendix E of this ~~SNL/NM~~ General Part B.

Except where noted in Unit-specific modules, all loading and unloading areas are level, and the asphalt or concrete pavement is in good condition. Loading and unloading areas are also typically free of overhead and other obstructions to visibility and operations.

Appropriate vehicles, forklifts, drum dollies, pallet jacks, and other tools for the safe transport and handling of wastes are used during loading and unloading operations. Small containers may be loaded or unloaded manually from waste-transport vehicles. A forklift or hydraulic lift is typically used to load or unload larger containers. For loads that are moved with a forklift, the containers of waste are typically held together on a pallet with straps or shrink-wrap. Fasteners and clamps are typically used with drum dollies. Waste-handling equipment is maintained and operated in accordance with manufacturers' guidance.

Only qualified personnel trained in RCRA-regulated waste management procedures are allowed to handle RCRA-regulated waste at Units, and they typically work in pairs. Personnel are trained to be aware of weather conditions and other operations that could affect waste movement, and to exercise caution in operating equipment such as forklifts.

1.1.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

Run-on of surface water from surrounding areas and runoff of waste is prevented at Units by Unit design and operating practices. Unit-specific runon/runoff features and operating precautions are described in each Unit-specific Part B module.

1.1.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Due to the depth to groundwater at SNL/NM and Unit operating procedures, it is not anticipated that there will be any impact to groundwater or other water supplies as a result of ongoing operations that involve handling RCRA-regulated wastes~~s handling operations~~ at any Unit. Contamination of surface water and groundwater is prevented by Unit operating procedures as well as the spill containment features located within a specific WMA at a Unit. Spills are contained within the buildings or within secondary containment systems, and are cleaned up promptly. Spills occurring outside the buildings will be contained promptly and cleaned up so as not to come into contact with surface water or groundwater. Some units are supplied with potable water that is provided through pressurized underground water supply lines. These water supply lines are designed to withstand industrial activities that are typical of waste management operations, and they are not affected by Unit operations.

1.1.4.4 Mitigating Effects of Equipment Failure and Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

In the event of a power loss, it is usually possible for Unit personnel to place the affected equipment in a safe state, close or cover open containers of RCRA-regulated wastes that are present, and stop operations until power is restored.

The general types of equipment, utilities, and systems that would be affected by a power or equipment failure are listed below, together with features and activities to mitigate effects of a failure.

- Lights: Fixed battery-operated lights operate in the buildings in each Unit where available.
- Alarms: Fire alarm devices in each Unit (except the MSB) are equipped with emergency power supply.
- Pumps and other equipment: Personnel use portable manually- or pneumatically-operated equipment or wait for power to be restored.
- Container-handling equipment: Unit personnel obtain forklifts and drum-handling equipment from Sandia's transportation department.
- Personal Protective Equipment: Unit personnel replace equipment with supplies in the Unit storage areas.
- Vehicles: Unit personnel obtain replacements for vehicles from Sandia's transportation department.
- Telephone: Unit personnel use cellular telephones or portable radios.
- Fire sprinklers: Unit personnel use portable fire extinguishers.

Additional Unit-specific procedures (where applicable) are included in each Unit-specific module.

1.1.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

Only qualified personnel trained in RCRA-regulated waste management procedures are allowed to handle RCRA-regulated waste at Units. The training that these personnel receive includes use of appropriate equipment and personal protective equipment (PPE) for the RCRA-regulated wastes managed at SNL/NM Units.

Personnel at SNL/NM Units are required to use appropriate PPE to protect themselves from the hazards that are or may be found in the work place under normal conditions. Such hazards may include handling heavy containers, operating waste-handling equipment, weather conditions, and contact with RCRA-regulated wastes and constituents.

Operations at SNL/NM Units typically require that personnel handling closed containers of RCRA-regulated wastes wear PPE that includes safety shoes and appropriate gloves (e.g., heavy abrasion-resistant gloves with or without chemical-resistant outer gloves. Depending on the work performed, they may also wear safety glasses or goggles, coveralls, and hard hats.

During treatment operations or other work that involves opening containers, personnel typically don additional PPE (e.g., safety glasses, face shields, chemical-resistant gloves, and coveralls) to protect themselves from hazards that may be present. Such hazards may include the potential for contact with liquids, particles, or corrosive materials.

Increased PPE (e.g., respiratory protection) may also be required during an emergency or unusually hazardous situation.

1.1.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Subpart AA

Sandia/DOE do not use any of the processes identified in 20 NMAC 4.1.500/40 CFR 264, Subpart AA [~~6-14-00~~10-1-03] during storage of RCRA-regulated wastes. Therefore, the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [~~6-14-00~~10-1-03] do not apply to SNL/NM.

Subpart BB

Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥ 10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [~~6-14-00~~10-1-03] during storage. Equipment used in such service will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of

20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of such equipment will be maintained with other Unit records, as described in Section 9.0. Further information is provided in Modules II, III, and V.

Subpart CC

RCRA-regulated wastes stored in containers at SNL/NM may be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/40 CFR 264.1080 [~~6-14-00~~10-1-03]. These standards are not applicable to:

1. Containers that held RCRA-regulated waste prior to December 6, 1996, and to which no RCRA-regulated waste has been added on or after December 6, 1996;

2. Containers having a design capacity of less than or equal to 0.1 cubic meter (m^3) or approximately 26 gallons;

3. Containers used solely for on-site management of RCRA-regulated waste placed in the Unit as a result of implementing remedial activities under corrective action authorities;

4. Containers used solely for the management of radioactive mixed waste; or

5. Containers equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation (20 NMAC 4.1.500/40 CFR 264.1080[b] [~~6-14-00~~10-1-03].

Furthermore, a container is exempt from the 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03] container standards in 20 NMAC 4.1.500/40 CFR 264.1086 [~~6-14-00~~10-1-03] if:

- The RCRA-regulated waste in a container has an average volatile organic concentration at the point of waste origin of less than 500 parts per million by weight (ppmw), or

- The organic content of all RCRA-regulated waste entering a container has been reduced by an organic destruction or removal process achieving any one of the conditions specified in 20 NMAC 4.1.500/40 CFR 264.1082(c)(2)(i)-(vi) [~~6-14-00~~10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082 [~~6-14-00~~10-1-03]), or

- The RCRA-regulated waste in the container meets the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40 for organic hazardous constituents present in the waste.

Sandia personnel assume that each container of RCRA-regulated wastes that meets the applicability criteria for Subpart CC (i.e., each container that is not included in any of items 1 through 5 above) is subject to the Subpart CC requirements, unless a waste determination is made in accordance with 20 NMAC 4.1.500/40 CFR 264.1083 to establish that one or more of the exemptions is applicable. The waste determination process is described in Appendix B of this General Part B, and the results are included in the operating record as described in Section 9.0.

At SNL/NM, RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03] requirements are managed in primary containers that have a design capacity greater than 0.1 m^3 but less than 0.46 m^3 while in the container storage Units. Such containers are subject to Container Level 1 standards in 20 NMAC 4.1.500/40 CFR 264.1086(c). Two types of containers are used:

- U.S. Department of Transportation-approved containers that meet the requirements in 20 NMAC 4.1.500/40 CFR 264.1086(f), or

- Containers equipped with covers and closure devices that form a continuous barrier over the container openings as specified in 20 NMAC 4.1.500/40 CFR 264.1086(c)(ii).

Releases to the atmosphere are not anticipated at any of the container storage Units because containers are kept closed during storage. Covers of containers that are subject to the Container Level 1 standards are secured and maintained in closed and sealed conditions (i.e., no cracks, holes, gaps, or other open spaces) while the containers are in storage. Covers are opened only for access for the purposes described in 20 NMAC 4.1.500/40 CFR 264.1086(c) (1)-(5) [~~6-14-00~~10-1-03]: these include adding waste to or removing waste from the container; repackaging the contents; and inspecting or sampling the waste in the container. At each Unit where containers subject to Container Level 1 standards are stored, personnel take the following steps:

- Check containers and the condition and placement of their covers during inspections of stored containers.

- Take remedial actions if needed.

- Record container condition and remedial actions taken in the inspection reports.

These activities are described in Appendix C of this General Part B and in Section 4.0 of the Unit-specific module for each Unit where containers are stored.

Unit personnel maintain records of waste addition to containers as part of the operating record described in Section 9.0. Thus, primary containers that become subject to the Container Level 1 standards are identified at the time they first become subject to the standards, and are subsequently managed in accordance with the standards. If Unit personnel discover that a container should have been managed in accordance with the Container Level 1 standards but was not, Sandia/DOE will file a written report to NMED within 15 days as required in 20 NMAC 4.1.500/40 CFR 264.1090(a).

Sandia/DOE do not store RCRA-regulated wastes in containers that are subject to Container Level 2 or Level 3 standards. Additional Unit-specific information is provided in Section 1.0 of each Unit-specific Part B module for container storage areas (if applicable).

Air emissions control requirements for treatment are addressed in Section 8.0.

1.2 Container Storage

The information provided in this section is submitted to address the applicable container storage requirements of 20 NMAC 4.1.900/40 CFR 270.15 [~~6-14-00~~10-1-03], and 20 NMAC 4.1.500/40 CFR 264, Subpart I (~~6-14-00~~10-1-03). The following sections provide brief descriptions of waste management practices applicable to all Units used for container storage of RCRA-regulated wastes at SNL/NM.

Additional Unit-specific information is provided in Section 1.3 of each Unit-specific Part B module.

1.2.1 Container Types and Labeling

Containers that may be used to store RCRA-regulated waste stored at Units qualify as "containers" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03]. That is, they are "portable devices in which a material is stored, transported, disposed of, or otherwise handled."

A number of container types are used for storage of RCRA-regulated wastes ~~storage~~, depending on the type of waste and the ultimate disposition of the waste. Waste containers that may be stored at the SNL/NM Units include, but are not limited to, 30-, 55-, 83-, 85-, and 110-gallon steel, polyethylene, and fiber drums; fiberglass-reinforced plastic or plywood boxes; various steel boxes; metal overpack boxes; cardboard shipping containers; gas cylinders; roll-off bins; labpack containers; various small containers (e.g., 1-, 2-, 5-, 10-, and 20-gallon drums or pails); bags; and some oversized, irregularly-shaped containers.

Containers of RCRA-regulated wastes ~~containers~~ are clearly labeled with the words "hazardous waste" and a description of container contents (i.e., hazardous waste constituents). The accumulation start date is clearly marked on each container holding RCRA-regulated waste at a SNL/NM Unit.

1.2.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

As required by 20 NMAC 4.1.500/40 CFR 264.173(b) [~~6-14-00~~10-1-03], containers of RCRA-regulated wastes ~~containers~~ at SNL/NM are handled in a manner that will not cause them to rupture or leak. As required by 20 NMAC 4.1.500/40 CFR 264.173(a) [~~6-14-00~~10-1-03], stored containers at SNL/NM are kept closed during storage except when waste is added to or removed from a container, the contents of a container need to be repackaged, or waste is being inspected or sampled.

Waste-handling equipment is maintained and operated in accordance with manufacturers' guidance.

1.2.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

Prior to transportation or storage, additional containment is provided for each container that is not in good condition (e.g., severe rusting, apparent structural defects). The container may be

overpacked or the waste may be repackaged in containers that are in good condition (20 NMAC 4.1.500/40 CFR 264.171 [~~6-14-00~~10-1-03]).

Containers are handled with care, maintained in good condition, and inspected according to the schedule outlined in Appendix C and Section 4.0 of each Unit-specific module. During storage, if a container holding RCRA-regulated waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, Unit personnel begin taking action to remediate the situation upon discovery. Remedial actions include transferring the RCRA-regulated waste from that container to a container that is in good condition or overpacking the container.

1.2.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

Storage configuration of containers depends upon the type of container, its size, and its weight restrictions as well as the load-bearing and/or secondary containment capacity of the specific Unit. Aisle space is maintained to enable the unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency (20 NMAC 4.1.500/40 CFR 264.35 [~~6-14-00~~10-1-03]). Additional information is provided in Unit-specific modules.

1.2.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

As required by 20 NMAC 4.1.500/40 CFR 264.172 [~~6-14-00~~10-1-03], only containers made of or lined with materials that will not react with and are otherwise compatible with the RCRA-regulated waste stored in them are managed at SNL/NM Units. Unit personnel will evaluate the compatibility of the waste to the container by considering one or more of the following as appropriate:

- Physical properties of the waste.
- Chemical properties of the original raw material(s) or commercial chemical product(s) used in the activity that generated the waste (obtained through material safety data sheets or other published information)
- Physical and chemical similarities between the waste and the original material.
- Features of the container(s) used for the original material(s), and compatibility of those features with the physical and chemical properties of the waste.
- Chemical properties of the waste (obtained through knowledge of generating processes, material safety data sheets, and/or published information)
- Data from waste characterization activities as described in Appendix B of the General Part B.

- Information about the containers being considered (supplied by manufacturers of containers).
- US DOT hazardous materials information and packaging specifications (49 CFR 172.101).

Any additional Unit-specific information is included in Section 1.3 of each Unit-specific module.

1.2.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

Containers that do not contain free liquids are not required to be stored in areas equipped with secondary containment. Before storing containers in areas without secondary containment, Unit personnel will verify that the containers do not contain free liquids by reviewing the information provided by the initial waste generator (described in Section B.3.1 of the Waste Analysis Plan [Appendix B]). Any additional Unit-specific information is included in Section 1.3 of each Unit-specific module.

2.0 SITE DESCRIPTION

SNL/NM is located on Kirtland Air Force Base immediately southeast of Albuquerque, New Mexico. General information about the SNL/NM site is included "Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix A of this ~~SNL/NM~~ General Part B. Additional Unit-specific information is included in Section 2.0 of each Unit-specific module.

The information in Appendix A includes site description, security procedures, traffic patterns, location information for compliance with seismic and floodplain standards, a topographic map, and groundwater protection information.

3.0 WASTE ANALYSIS PLAN

RCRA-regulated wastes are stored and/or treated at Sandia waste management Units. Information about waste analysis at SNL/NM is included in "Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix B of this ~~SNL/NM~~ General Part B.

The information in Appendix B includes descriptions of waste streams, waste analysis parameters, characterization procedures, waste acceptance procedures, and special requirements.

4.0 INSPECTION PLAN

Sandia personnel inspect Unit waste management areas and associated systems on a regular basis to assure their integrity, maintenance, and safe operation. The inspection program is described in "Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix C to this ~~SNL/NM~~ General Part B.

The information in Appendix C includes daily inspection forms, weekly/monthly inspection forms, and requirements for inspection of various types of units. Unit-specific inspection plans are included in Section 4.0 of each module.

5.0 PERSONNEL TRAINING PLAN

Sandia Unit personnel receive training relevant to their positions. The training program is described in "Site-Wide Personnel Training Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix D to this ~~SNL/NM~~ General Part B. Any additional Unit-specific information is included in Section 5.0 of each Unit-specific module.

The information in Appendix D includes training content, frequency, techniques, and requirements for various waste management and Unit personnel.

6.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

Sandia/DOE have developed emergency response and contingency measures in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart D. The plan is described in "Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix E to this ~~SNL/NM~~ General Part B. Unit-specific information is included in Section 6.0 of each Unit-specific module.

The information in Appendix E includes description of Sandia/DOE emergency response system, general procedures to be followed by Unit personnel in the event of an emergency, and post-emergency actions. Unit-specific information that is included in Section 6.0 of each module includes: description of the Unit, description and location of emergency equipment, and emergency coordinators.

7.0 CLOSURE PLAN

Sandia/DOE have developed closure information and plans in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart G. The closure plan is described in "Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix F to this ~~SNL/NM~~ General Part B. Additional Unit-specific information is included in Section 7.0 of each Unit-specific module.

Closure information provided in Appendix F is applicable to partial closure and/or final closure of the entire SNL/NM facility. Partial closure is defined as closure of one or more Units while leaving other Units in operation. Partial closure will include removal of RCRA-regulated waste from the Unit to be closed, and decontamination or removal of structures and equipment that have been contaminated by waste materials. Such Unit closures will minimize the need for further maintenance, preclude the release of hazardous~~RCRA-regulated~~ waste or constituents to environmental media, and be protective of human health.

Final closure will occur when all SNL/NM Units are closed either by waste removal and decontamination or by disposal of contaminated structures and equipment.

8.0 TREATMENT

Sandia/DOE perform and plan to perform limited treatment of RCRA-regulated wastes treatment at some SNL/NM Units (i.e., TTF, existing RMWMF/future CWMF, AHCF). Treatment will be performed to render RCRA-regulated wastes nonhazardous and/or safer to manage on site and/or dispose of off site. Treatment operations requiring a permit are described in Section 8.0 of the Unit-specific module for each Unit where treatment is performed.

8.1 Handling and Treatment of Unstable Wastes

Because of the nature of Sandia/DOE activities, there are a number of chemicals that are used in various laboratories that, with age or improper storage, may become explosive, unstable, or dangerous to handle. Examples of such chemicals include unknown or damaged compressed gas or liquid cylinders; or expired, sensitized chemicals, such as picric acid, crystallized ether, tetrahydrofuran, heavy metal azides, or organic peroxides. Unit personnel may be required to handle and dispose of unstable chemicals.

If the material has deteriorated such that handling the chemical would pose an imminent and substantial threat of a release that could be harmful to human health or the environment, on-site stabilization may be performed to render the material nonhazardous. Treatment may include venting of known, nonhazardous gas cylinders or stabilizing (e.g., rehydrating) the chemical. Unknown gas cylinders are not vented to the atmosphere; however, a sample of the gas may be taken and analyzed to characterize the gas. According to 20 NMAC 4.1.500/ 40 CFR 264.1(g)(8) [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270.1(c)(3)(i) [6-14-0010-1-03], treatment of this type is exempt from permitting requirements and from 20 NMAC 4.1.500/40 CFR 264. Once the material has been stabilized and is safe to handle, it will be disposed of according to normal procedures through the appropriate Unit.

8.2 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Subpart AA

Sandia/DOE do not use any of the processes identified in 20 NMAC 4.1.500/40 CFR 264, Subpart AA [6-14-0010-1-03] for the treatment of RCRA-regulated wastes. Therefore, the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [6-14-0010-1-03] do not apply to SNL/NM.

Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥ 10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [6-14-0010-1-03] except during treatment at the TTF. Sandia/DOE

occasionally manage such waste using process equipment identified above at the existing RMWMF/future CWMF and AHCF.

Equipment at the Units is used less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of the equipment will be maintained in the Unit records, as described in Section 9.0.

Subpart CC

RCRA-regulated wastes are treated in containers at the existing RMWMF/future CWMF and AHCF. Such wastes and treatment processes may be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/40 CFR 264.1080 [~~6-14-00~~10-1-03]. These standards are not applicable to:

1. Containers that held RCRA-regulated waste prior to December 6, 1996, and to which no RCRA-regulated waste has been added on or after December 6, 1996;

2. Containers having a design capacity of less than or equal to 0.1 cubic meter (m^3) or approximately 26 gallons;

3. Containers used solely for on-site management of RCRA-regulated waste placed in the Unit as a result of implementing remedial activities under corrective action authorities;

4. Containers used solely for the management of radioactive mixed waste; or

5. Containers equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation (20 NMAC 4.1.500/40 CFR 264.1080[b] [~~6-14-00~~10-1-03].

Furthermore, a container is exempt from the 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03] container standards in 20 NMAC 4.1.500/40 CFR 264.1086 [~~6-14-00~~10-1-03] if:

- The RCRA-regulated waste in a container has an average volatile organic concentration at the point of waste origin of less than 500 parts per million by weight (ppmw), or

- The organic content of all RCRA-regulated waste entering a container has been reduced by an organic destruction or removal process achieving any one of the conditions specified in 20 NMAC 4.1.500/40 CFR 264.1082(c)(2)(i)-(vi) [~~6-14-00~~10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082 [~~6-14-00~~10-1-03]), or

- The RCRA-regulated waste in the container meets the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40 for organic hazardous constituents present in the waste.

Sandia personnel assume that each container of RCRA-regulated wastes undergoing treatment that meets the applicability criteria for Subpart CC (i.e., each container that is not included in any of items 1 through 5 above) is subject to the Subpart CC requirements, unless a waste determination is made in accordance with 20 NMAC 4.1.500/40 CFR 264.1083 to establish that one or more of the exemptions is applicable. The waste determination process is described in Section B.5.3 in Appendix B of this General Part B, and the results are included in the operating record as described in Section 9.0.

At SNL/NM, RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03] requirements are treated in primary containers that have a design capacity of less than 0.1 m^3. These treatment activities are exempt from Subpart CC standards, as noted above. Sandia/DOE do not perform treatment activities that are subject to Container Level 3 standards.

Management of releases to the atmosphere from containers during storage is addressed in Section 1.1.4.6.

Additional Unit-specific information is provided in Section 8.0 of each Unit-specific Part B module for Units where treatment is performed.

9.0 RECORDKEEPING

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart E, [~~6-14-00~~10-1-03]. The following Unit-specific records are maintained by Sandia/DOE at each Unit unless specified otherwise in each Unit-specific Part B module.

- A current copy of sections of ~~SNL/NM~~ General Part B permit renewal request/application (or permit upon issuance) that govern Unit operations, including the site-wide waste analysis (Appendix B), inspection (Appendix C), training (Appendix D), contingency (Appendix E), closure (Appendix F), and treatment plans (where applicable);

- A current copy of the Unit-specific module sections in the current ~~SNL/NM~~ General Part B that provide additional information, including inspection (Section 4.0), contingency (Section 6.0), and closure (Section 7.0).

- A written or electronic operating record that describes:

  - the type and quantity of each RCRA-regulated waste received

  - the location of RCRA-regulated wastes and the quantity at each location

  - the method(s) and dates of storage and/or treatment of the RCRA-regulated waste

  - records and results of ~~RCRA-regulated~~ waste analyses and determinations for RCRA-regulated wastes

  - determinations that RCRA-regulated wastes are subject to the Federal Facilities Compliance Order between DOE, Sandia, and NMED (1995, as amended)

  - reports of any incidents that required activation of the Contingency Plan

  - inspection forms for the last three years

  - monitoring, testing, or analytical data and records of corrective actions taken (in the previous or current calendar year) to prevent or mitigate releases of RCRA-regulated waste to the environment

  - treatment notices and certifications (as specified in 20 NMAC 4.1.800/40 CFR 268.7(b), (d), and (e) or 268.9(d) [~~6-14-00~~10-1-03])

  - off-site treatment facility notices and certifications as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(11), and on-site treatment facility information as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(12)

  - off-site storage facility notices and certifications (as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(15), and on-site storage facility information as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(16).

- Training records for current personnel;
- Written inspection schedule; and
- Air emissions records (as specified in 20 NMAC 4.1.500/40 CFR 264.1064 and 264.1089 [~~6-14-00~~10-1-03]). These include a list of process equipment at the Unit that is identified in 20 NMAC 4.1.500/40 CFR 264 Subpart BB and is used for less than 300 hours per year for management of RCRA-regulated wastes with organic concentrations ≥ 10 percent by weight.

The following records are maintained at the SNL/NM Records Center, currently located in Building 869:

- A copy of the ~~SNL/NM~~ General Part B permit renewal request/application (or permit upon issuance);
- Correspondence and other documents from government agencies;
- Notices to off-site generators (as specified in 20 NMAC 4.1.500/40 CFR 264.12[b] [~~6-14-00~~10-1-03]);
- Waste minimization certification;
- Training records for former employees (maintained for a minimum of three years from the date the employee last worked at a Unit);
- Historical training records for current employees)
- Manifest documents for RCRA-regulated waste shipped off site;
- A copy of the Hazardous Waste Report (Biennial Report);
- Copies of unmanifested waste reports;
- Certification and documentation that the Unit and any associated closed-vent system, control system, and containers meet the specifications of 20 NMAC 4.1.500/40 CFR 264.1084 and 1089 [~~6-14-00~~10-1-03];
- Historical air emission records.
- Historical information from the written or electronic operating record.
- Superseded versions of the ~~SNL/NM~~ General Part B permit renewal request/application, the permit, Contingency Plan, Inspection Plan, Waste Analysis Plan, Treatment Plans, and Training Plan.

9.1 Hazardous Waste Report (Biennial Report; 20 NMAC 4.1.500/40 CFR 264.75 and 20 NMAC 4.1.300/40 CFR 262.41)

Sandia/DOE will prepare and submit a hazardous waste report (biennial report) to the New Mexico Environment Department (NMED) by March 1 of each even-numbered year as required by 20 NMAC 4.1.500/40 CFR 264.75 and 20 NMAC 4.1.300/40 CFR 262.41 [~~6-14-00~~10-1-03]. The biennial report will be submitted to the NMED on U.S. Environmental Protection Agency (EPA) Form 8700-13A/B (June 2000 or update) unless directed otherwise. The report will cover SNL/NM Unit activities during the previous calendar year and will include the information requested on the form and in the accompanying instructions, such as:

- The EPA identification number, name, and address of the facility;
- The calendar year(s) covered by the report;
- A description and the quantity of each RCRA-regulated waste received at each unit during the year;
- The method of treatment, storage, or disposal for each RCRA-regulated waste;
- For generators who treat, store, or dispose of RCRA-regulated waste on site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
- For generators who treat, store, or dispose of RCRA-regulated waste on site, a description in the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and
- The certification signed by Sandia/DOE or an authorized representative.

9.2 Unmanifested Waste Report (20 NMAC 4.1.500/40 CFR 264.76)

Waste from off-site sources may be accepted at SNL/NM, provided that such waste is properly characterized and transported, and meets the requirements listed in Section B.4 of Appendix B. If Sandia/DOE accepts any wastes for treatment or storage from an off-site large quantity generator without an accompanying manifest, or without an accompanying shipping paper as described in 20 NMAC 4.1.500/40 CFR 264.76 [~~6-14-00~~10-1-03], Sandia/DOE will prepare and submit an Unmanifested Waste Report (EPA Form 8700-13B) to the NMED within fifteen days after receiving the waste. The report will include the following:

- The EPA identification number, name, and address of the facility;
- The date the Unit received the waste;
- The EPA identification number, name, and address of the generator and transporter, if available;

- A description and the quantity of each unmanifested RCRA-regulated waste and facility received;
- The method of treatment, storage, or disposal for each RCRA-regulated waste;
- The certification signed by Sandia/DOE or an authorized representative; and
- A brief explanation of why the waste was unmanifested, if known.

9.3 Additional Reports (20 NMAC 4.1.500/40 CFR 264.77)

In accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264.77 [~~6-14-00~~10-1-03], Sandia/DOE will also report the following to the NMED:

- Releases, fires, and explosions as specified in 20 NMAC 4.1.500/40 CFR 264.56(j) [~~6-14-00~~10-1-03];
- Unit closures specified in 20 NMAC 4.1.500/40 CFR 264.115 [~~6-14-00~~10-1-03];
- Manifest discrepancies that cannot be resolved within 15 days after receiving the waste as required by 20 NMAC 4.1.500/40 CFR 264.72(b) [~~6-14-00~~10-1-03];
- Occurrence(s), if any, when RCRA-regulated waste is placed in a container in noncompliance with conditions specified in 20 NMAC 4.1.500/40 CFR 264.1090[a] [~~6-14-00~~10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082[c][1] or [2] [~~6-14-00~~10-1-03]); and
- As otherwise required by 20 NMAC 4.1.500/40 CFR 264, Subparts F, BB, and CC [~~6-14-00~~10-1-03].

10.0 OTHER FEDERAL LAWS

The following federal laws are required under 20 NMAC 4.1.900/40 CFR 270.3 and 270.14(b)(20) [~~6-14-00~~10-1-03], to be given consideration when applying for a hazardous waste facility permit. When any of these laws is applicable, its procedures must be followed. Requirements and applicability of each law are briefly summarized.

1. *The Wild and Scenic Rivers Act (16 United States Code [USC] 1273 et seq.)*. This act provides for a national wild and scenic rivers system and prohibits construction of water resources projects that would have a direct adverse impact on wild and scenic river values. The Rio Grande, the closest river to SNL/NM Units at a distance of approximately 7 miles, is designated as a wild and scenic river. SNL/NM Unit operations do not involve any water resources project construction or development. Therefore, the Wild and Scenic Rivers Act does not apply.

2. *The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.)*. This act establishes a program for the preservation of the nation's cultural resources including historic properties. Cultural resources at KAFB include prehistoric archaeological sites, which in the Albuquerque area date to before AD 1540 (the initiation of Spanish exploration of the area), and historic archaeological sites (sites, buildings, and structures from AD 1540 to 1948). Within the boundaries of KAFB and DOE buffer zones are 284 recorded prehistoric and historic archaeological sites. No traditional cultural properties have been identified at KAFB.

   Cultural resource investigations have recorded approximately 37 eligible and potentially eligible cultural properties in areas used by Sandia/DOE on Kirtland Air Force Base (KAFB) (Table 3). In addition, some Sandia/DOE structures on KAFB land could have Cold War significance or are approaching 50 years of age; these are in the process of being evaluated for potential inclusion in the National Register.

Table 3
Cultural Properties Used by Sandia/DOE on Kirtland Air Force Base

Land Jurisdiction	Cultural Properties		
	Eligible	Potentially Eligible	Total
USAF/USFS withdrawn: Sandia/DOE joint use	8	9	17
USAF: Sandia/DOE/Others joint use	15	5	20
Total	23	14	37

DOE = U.S. Department of Energy
Sandia = Sandia Corporation
USAF = U.S. Air Force
USFS = U.S. Forest Service

The NHPA has been amended by the Archeological and Historic Preservation Act *(16 USC 469a et seq.)*, which directs federal agencies to recover and preserve historic and archeological data that would otherwise be lost as a result of federal construction

or other activities. It has also been amended by the Archeological Resources Protection Act (ARPA) (*16 USC 470aa et seq.*), which requires a permit from the U.S. Department of the Interior (DOI) for excavation or removal of archeological resources from public or pueblo lands. Both of these statutes apply to known or future cultural properties recorded on KAFB land used by Sandia/DOE. Any excavations conducted on, or removal of archaeological resources from, KAFB land used by Sandia/DOE require an ARPA permit obtained through the DOI, National Park Service.

3. *The Endangered Species Act of 1973 (16 USC 1531 et seq.)*. This act provides for the protection of endangered and threatened species of flora and fauna. The act prohibits any action that would jeopardize the continued existence of any endangered or threatened species or its critical habitat. There are no federally-listed threatened or endangered species in the vicinity of SNL/NM Units. Consequently, neither formal consultation nor biological opinion processes have been required for SNL/NM Unit operations by the U.S. Fish and Wildlife Service under Section 7 of the Act.

4. *The Coastal Zone Management Act of 1972 (16 USC 1451 et seq.)*. This act establishes national policy for the management, use, protection, and development of land and water resources of the nation's coastal zones. Section 307(c) of the act and implementing regulations prohibit the EPA from issuing a permit for activity affecting coastal zone land or water without the certification from the applicant that the activity is in compliance with the state Coastal Zone Management Program. As an inland state, New Mexico does not have a State Coastal Zone Management Program with which Sandia/DOE must comply. None of the SNL/NM Units are located in an affected area (i.e., a coastal zone); therefore, the act does not apply.

5. *The Fish and Wildlife Coordination Act of 1934, as amended (16 USC 661-666c)*. This act provides for the protection of fish and wildlife resources potentially affected by development projects that modify any stream or other body of water 10 acres or greater in size. Because there are no natural bodies of surface water proposed for modification by SNL/NM Unit activities, the Fish and Wildlife Coordination Act does not apply.

Consideration will be given to Executive Orders, issued by the President, that are relevant to management of RCRA-regulated wastes ~~management activities~~ at SNL/NM.

11.0 CORRECTIVE ACTION

In accordance with 20 NMAC 4.1.900/40 CFR 270.14(d) [~~6-14-00~~10-1-03], information on solid waste management units is presented in Part 4 of this comprehensive Part B permit request. Solid waste management units are shown on Figure 1 in Part 4.

12.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Les E. Shephard~~Donald H. Blanton~~ Date Signed
Vice President, Energy, Information, and Infrastructure Surety~~Human Resources and Protection Services~~
Sandia Corporation
Albuquerque, New Mexico
Co-Operator

Patty Wagner~~Karen L. Boardman~~ Date Signed
Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Albuquerque, New Mexico
Owner and Co-Operator

13.0 REFERENCES

Bretherick's Handbook of Handbook of Reactive Chemical Hazards, 5th Edition, 1995. P.G. Urben, Editor. Butterworth-Heinemann

Hoagland, S.R., 1991, "A Cultural Resources Survey Conducted in the Vicinity of the Sandia National Laboratories Burn Site, KAFB, New Mexico," CGI Project No. 8067 AF.CR, Chambers Group, Inc., Albuquerque, New Mexico.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

New Mexico Environment Department (NMED), US Department of Energy, Sandia Corporation, 1995, Federal Facilities Compliance Order

NFPA, see National Fire Protection Association

NMED, see New Mexico Environment Department

Sandia National Laboratories/New Mexico (SNL/NM), 2004~~3~~, "Sandia National Laboratories/ New Mexico General Part A Permit Renewal Request/Application, Revision 7~~5~~.0," Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy, 1999, "Final Site-Wide Environmental Impact Statement for Sandia National Laboratories/New Mexico" (DOE/EIS-0281), Albuquerque Operations Office, Albuquerque New Mexico

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

APPENDIX A

SITE-WIDE DESCRIPTION FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-A-ii
LIST OF FIGURES ..... SW-A-iii
ACRONYMS AND ABBREVIATIONS ..... SW-A-iv
A.1 GENERAL SITE DESCRIPTION SW-A-1
A.2 SECURITY PROCEDURES AND EQUIPMENT SW-A-2
A.2.1 Barriers and Means to Control Entry SW-A-3
A.2.2 Warning Signs SW-A-3
A.3 TRAFFIC PATTERNS, VOLUMES, AND CONTROLS SW-A-3
A.3.1 Traffic Patterns SW-A-4
A.3.2 Traffic Volumes SW-A-4
A.3.3 Traffic Control Signals SW-A-5
A.4 SITE LOCATION INFORMATION SW-A-5
A.4.1 Geologic Setting SW-A-5
A.4.2 Seismic Standard SW-A-5
A.4.3 Floodplain Standard SW-A-6
A.5 TOPOGRAPHIC MAPS SW-A-6
A.5.1 Wells SW-A-7
A.5.2 Wind Rose SW-A-7
A.5.3 Surrounding Land Use SW-A-7
A.5.4 Drainage Control Features SW-A-8
A.5.5 Waste Management Areas SW-A-8
A.6 GROUNDWATER MONITORING SW-A-9
A.7 OTHER PERMIT ACTIVITIES SW-A-9
REFERENCES SW-A-9

LIST OF TABLES

Table No.	Title
A-1	RCRA-Regulated Waste Management Units

LIST OF FIGURES

Figure No.	Title
A-1	Site Location Map, Albuquerque and Kirtland Air Force Base (KAFB)
A-2	Unit Location Map, Sandia National Laboratories/New Mexico
A-3	Sandia National Laboratories/New Mexico Technical Areas (TAs) in Relation to Kirtland Air Force Base
A-4	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes, Sandia National Laboratories/New Mexico
A-5	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes Around Technical Area I
A-6	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes in Technical Areas III and V
A-7	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes at Manzano Base
A-8	Land Uses Adjacent to and Within Kirtland Air Force Base (including Sandia National Laboratories/New Mexico)
A-9	Geologic Features in Relation to Sandia National Laboratories/New Mexico

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
CWMF	Consolidated Waste Management Facility
DOE	U.S. Department of Energy
ft	foot/feet
HWMF	Hazardous Waste Management Facility
KAFB	Kirtland Air Force Base
MSB	Manzano Storage Bunkers
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
TA	Technical Area
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USFS	U.S. Forest Service

SITE-WIDE DESCRIPTION FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

The information provided in this appendix is submitted in accordance with the applicable requirements of New Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.1500– and .900), rRevised October 1, 2003June 14, 2000 [6-14-0010-1-03]. / [6-14-00] 40 CFR 260–266, 268, and 270 [6-14-00]. 20 NMAC 4.1.500 and .900 adopt, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270). The following subject areas are addressed in this appendix or in Section 2.0 of each Unit-specific module.

- A general description of the Sandia National Laboratories/New Mexico (SNL/NM) site (20 NMAC 4.1.900/40 CFR 270.14[b][1] [6-14-0010-1-03]);
- Site-wide security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Site-wide traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Site location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Site-wide topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]);
- Site-wide groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-0010-1-03]); and
- Other permit activities.

Together, the information in this appendix, in the General Part B, and in each Unit-specific Part B module meets the applicable regulatory requirements. Individual Units are listed in Table A-1.

For the purposes of this permit renewal request/application, SNL/NM (the facility) is owned by DOE and co-operated by Sandia and DOE.

A.1 GENERAL SITE DESCRIPTION (20 NMAC 4.1.900/40 CFR 270.14[b][1])

SNL/NM is located on Kirtland Air Force Base (KAFB) immediately southeast of the Albuquerque city limits in Bernalillo County, New Mexico. SNL/NM occupies an area of approximately 2,842 acres within the 80-square-mile KAFB (Figure A-1).

Table A-1
RCRA-Regulated Waste Management Units

Unit Name	Acronym	Location, size	Types of operations	Operating Status
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. 1.35 acres	Storage, Repackaging	Existing, operational
Thermal Treatment Facility	TTF	Northern part of TA-III. 196 square feet	Treatment	Existing, on standby
Consolidated Waste management Facility/Radioactive and Mixed Waste Management Facility[a]	CWMF/ RMWMF	Southeast corner of TA-III. 3.11 acres	Storage, Treatment, Repackaging	Existing, operational[a]
Auxiliary Hot Cell Facility	AHCF	TA-V. 5578 square feet	Storage, Treatment, Repackaging	Existing, expected to start operations in 2003
Manzano Storage Bunkers (Set of five Units)	MSB	In Manzano Area on KAFB. 0.4 acres occupied by bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	Existing, operational

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes)..

SNL/NM (U.S. Environmental Protection Agency Identification Number NM5890110518) is a multidisciplinary laboratory engaged in research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others. Activities at SNL/NM fall under North American Industry Classification System Numbers 92811 (National Security) and 54171 (Research and Development in the Physical, Engineering, and Life Sciences).

The major Sandia/DOE research and administration functions are located at five Technical Areas (TAs), designated I through V. TAs I, II, and IV are located north of Tijeras Arroyo and Arroyo del Coyote (Figures A-2 and A-3). TAs III and V occupy contiguous tracts of land south of Tijeras Arroyo and west of Arroyo del Coyote.

A.2 SECURITY PROCEDURES AND EQUIPMENT (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

In accordance with 20 NMAC 4.1.500/40 CFR 264.14(a) [~~6-14-00~~10-1-03], an owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of a facility. The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of Units.

A.2.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

20 NMAC 4.1.500/40 CFR 264.14 [~~6-14-00~~10-1-03] and 270.14[b][19][viii] [~~6-14-00~~10-1-03], require that security be provided by 24-hour surveillance which is continuously monitored and controls access to the facility (20 NMAC 4.1.500/40 CFR 264.14[b][1] [~~6-14-00~~10-1-03]), or if that requirement cannot be met, a natural or artificial barrier and means to control entry must be provided (20 NMAC 4.1.500/40 CFR 264.14[b][2] [~~6-14-00~~10-1-03]). The design and operation of the SNL/NM facility fully meet the security requirements of 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [~~6-14-00~~10-1-03].

The five TAs, Manzano Base, and Units outside TAs are surrounded by fences that prohibit access except through gated entrances. Only personnel with appropriate Sandia-issued access badges and identification, or escorted visitors, are allowed access to the TAs and all Units. The gates and/or doors to all Units are closed and locked during non-operating hours.

Sandia/DOE security personnel periodically monitor the gates of all SNL/NM technical areas and RCRA-regulated waste management Units during non-operational hours. Any additional Unit-specific information on security procedures and access control is provided in each Unit-specific module.

The SNL/NM Units are located within the fenced boundaries of KAFB. Access to KAFB is controlled 24 hours per day, 7 days per week. Entrance is possible only though five gates, staffed by armed military police, upon recognition of identification stickers or passes issued to each vehicle. Visitors must have a base sponsor and sign an entry log prior to entering the base. The gates are shown in Figure A-4.

A.2.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

20 NMAC 4.1.500/40 CFR 264.14(c) [~~6-14-00~~10-1-03], requires that signs meeting the requirements of that section be posted. Each SNL/NM Unit is posted with “Danger: Unauthorized Personnel Keep Out” (or functionally equivalent) signs in English and Spanish. The signs are legible from a distance of 25 feet and can be seen from any approach to any Unit. The signs and their placement meet the requirements of 20 NMAC 4.1.500/40 CFR 264.14(c) [~~6-14-00~~10-1-03]. Any additional Unit-specific information on warning signs is provided in each Unit-specific module.

A.3 TRAFFIC PATTERNS, VOLUMES, AND CONTROLS (20 NMAC 4.1.900/ 40 CFR 270.14[b][10])

The traffic pattern information presented below is general in nature. More detailed information is provided in Section 2.2 of each Unit-specific module.

RCRA-regulated waste is generated during operations at sites throughout SNL/NM. Because RCRA-regulated waste may be generated throughout SNL/NM, waste transport may occur on nearly all roads within KAFB. Off-site wastes may be received at SNL/NM (see Appendix B of this ~~SNL/NM~~ General Part B). The Units included in this permit application can be reached from the

KAFB entrance gates at Wyoming Boulevard, Truman Avenue, Gibson Boulevard, or Eubank Boulevard (Figure A-4). KAFB may restrict hazardous material traffic to one or more gates.

A system of interior roads, as shown in Figures A-4, A-5, A-6, and A-7, is maintained at SNL/NM. About 78 total miles of roadway exist; 33 of those miles are paved. The paved roads present at SNL/NM are generally built in conformance to the New Mexico State Highway Standards or the "City of Albuquerque Development Process Manual, Standards for Residential Streets" (City of Albuquerque, 1983 and amendments). These standards conform to specifications prepared by the American Association of State Highway Transportation Officials. Paved roads at SNL/NM are generally designed and constructed to accommodate light to moderate volumes of truck traffic, including 30- to 40-ton vehicles. The roads typically consist of a 1.5 - to 4-inch layer of asphaltic pavement over a 4- to-6 inch base course (not always present) and 8- to 12-inch compacted subgrade.

A.3.1 Traffic Patterns

Information addressing current Unit-specific travel routes is presented in Section 2.2 of each Unit-specific module. Traffic patterns are subject to change in response to KAFB security requirements.

A.3.2 Traffic Volumes

During the last official traffic study conducted at KAFB in 1984, the average number of vehicles passing through the continuously guarded KAFB gates during normal workday hours from Monday through Friday was estimated to be (Meyers, 1991):

- Carlisle-Gibson gate—5,200 vehicles
- Truman-Gibson gate—10,200 vehicles
- Louisiana-Gibson gate—18,000 vehicles
- Wyoming gate—21,600 vehicles
- Eubank gate—12,200 vehicles.

The majority of the 67,200 total vehicles consisted of commuting employees in personal automobiles and light-duty trucks. At the time of the traffic study, about 8,400 people were employed at SNL/NM (including Sandia personnel and contractors) and an estimated additional 21,000 people were employed at adjoining KAFB and DOE facilities (Jackson, 1991). Sandia personnel and contractors currently number about 6,450 people and an additional 17,000 are employed at KAFB and DOE facilities (Francis, 2001). The KAFB Security Forces squadron estimates that 40,000 to 50,000 vehicles currently pass through KAFB gates daily (Francis, 2001).

Therefore, Sandia/DOE believes the 1984 traffic data slightly overestimate the traffic volume for 2001.

A.3.3 Traffic Control Signals

Site wide traffic flow on KAFB is controlled by traffic lights, stop signs, yield signs, and one-way streets. Traffic lights are in place at major intersections on KAFB. Traffic signs are used at "T" intersections throughout KAFB, including SNL/NM. Any additional Unit-specific information addressing traffic control is presented in Section 2.2 of each Unit-specific module.

A.4 SITE LOCATION INFORMATION (20 NMAC 4.1.900/40 CFR 270.14[b][11])

A.4.1 Geologic Setting (20 NMAC 4.1.500/40 CFR 264.18[a] and 20 NMAC 4.1.900/40 CFR 270.14[b][11])

SNL/NM is located along the east-central edge of the Albuquerque Basin, one of a north-south-trending series of basins that make up the Rio Grande Rift. The Sandia, Manzanita, and Manzano Mountains, which are uplifted fault blocks, form the eastern boundary of the basin. The Lucero uplift bounds the west side of the basin, the Ladron Mountains bound the south side, and there is limited topographic relief on the northwest side of the basin. The basin is approximately 100 miles long and 20 to 40 miles wide (Figure A-9).

The eastern section of the Albuquerque Basin shows major faulting (Figures A-2 and A-9). The Hubbell Springs, Sandia, and Tijeras faults form a series of down-dropped blocks to the west (SAIC, 1985; Machette, 1982; Grant, 1981; Kelley, 1977).

The Tijeras Fault zone trends northeast from SNL/NM through Tijeras Canyon. The fault zone consists of several subparallel faults with near-vertical dips and show normal and left lateral displacement (Maynard et al., 1991; Lisenbee et al., 1979).

Within the boundaries of KAFB, the Albuquerque Basin rocks are Precambrian to Holocene in age. The upper part of the basin fill within KAFB is comprised of the Ceja Member of the Tertiary Santa Fe Group, which is a complex sequence of gravel, sand, silt, clay, and caliche deposits. Quaternary and Holocene deposits, which include alluvium, landslide deposits, eolian deposits, caliche, and gravel pediments, also comprise Albuquerque Basin sediments within KAFB (Kelley, 1977).

A.4.2 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

SNL/NM is located in Bernalillo County, New Mexico, which is listed in Appendix VI of 20 NMAC 4.1.500/40 CFR 264 [~~6-14-00~~10-1-03]. None of the SNL/NM Units are located within 3,000 feet (ft) of any fault with Holocene displacements (Machette, 1982). Therefore, all SNL/NM Units are compliant with the seismic standards in 20 NMAC 4.1.500/40 CFR 264.18(a) [~~6-14-00~~10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(11)(ii) [~~6-14-00~~10-1-03].

A.4.3 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii through v]; 20 NMAC 4.1.500/40 CFR 264.18[b])

SNL/NM is located near the middle of the upper Rio Grande basin that originates in southern Colorado. SNL/NM occupies generally flat, gently west-sloping mesa land located between the Rio Grande Valley to the west and the Manzano and Manzanita Mountains to the east. The nearest surface water body is the Rio Grande, located about 7 miles west of SNL/NM.

The locations of the 100-year floodplains of Tijeras Arroyo and Arroyo del Coyote are shown in Figure A-2. The floodplain portion of Figure A-2 was derived from a U.S. Army Corps of Engineers map (COE, 1979), prepared using Federal Emergency Management Administration guidelines that are equivalent to the mapping techniques used to prepare Federal Insurance Administration floodplain maps. None of the SNL/NM Units are located within a 100-year floodplain, as defined in 20 NMAC 4.1.500/40 CFR 264.18(b)(2)(i) [~~6-14-00~~10-1-03], and as regulated under 20 NMAC 4.1.500/40 CFR 264.18(b)(1) [~~6-14-00~~10-1-03] and 20 NMAC 4.1.900/ 40 CFR 270.14(b)(11)(iv) [~~6-14-00~~10-1-03]. Therefore, all SNL/NM Units are compliant with the floodplain standards.

A.5 TOPOGRAPHIC MAPS (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Figure A-2 is provided to meet the requirements of the 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [~~6-14-00~~10-1-03]. Figure A-2 is a topographic map of KAFB that shows the SNL/NM TAs and includes the following:

- Map scale and date
- The 100-year floodplain area
- Surface water bodies, including intermittent streams
- Wind roses
- Map orientation (north arrow)
- Legal boundaries of the SNL/NM facility
- Access control features (i.e., fences and gates)
- Groundwater monitoring, withdrawal, and water supply wells both on site and off site at KAFB and SNL/NM in the vicinity of the Units
- Buildings and other structures (e.g., access and internal roads)
- Locations of the HWMF, TTF, existing RMWMF/future CWMF, AHCF, and MSB.
- Areas of residential land use within KAFB.

These items are also shown on topographic maps in the Unit-specific modules. The Unit-specific maps show Unit features and the area surrounding each Unit in greater detail.

A.5.1 Wells (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix])

There are no injection wells at SNL/NM. Groundwater monitoring wells and withdrawal wells located at SNL/NM are shown in Figure A-2. None of the wells shown in Figure A-2 are expected to be influenced by activities at any SNL/NM RCRA-regulated waste management Unit because waste management activities occur in contained areas. KAFB water-supply wells, City of Albuquerque wells, and other wells located within 1,000 ft of the KAFB boundaries are shown on Figure A-2.

A.5.2 Wind Rose (20 NMAC 4.1.900/40 CFR 270.14[b][19][v])

A network of meteorological towers is used to monitor weather conditions at SNL/NM. Data indicate that the overall prevailing winds at SNL/NM are from the east, except that winter winds at the 100-ft elevation are from the north. Rapid night time ground cooling after sunset on cloudless or near-cloudless nights produces strong temperature inversions in which temperature increases with elevation (an atmospheric condition resulting from a reversal of the normal temperature lapse rate). This rapid cooling effect generates nighttime drainage winds out of the mountains, which are strongest at the mouths of the larger canyons. Nighttime winds in these areas are typically from the east and southeast, while daytime winds are typically from the southwest, west, and northwest. It also appears that Tijeras Arroyo diverts surface air flow between TAs III and V on the south and TAs I, II, and IV, and Albuquerque on the north (SNL/NM 2002, 2004). The channeling of wind through Tijeras Canyon can be seen by comparing the wind roses from these two areas (SNL/NM, 2002). Figure A-2 shows wind roses that summarize wind speeds and directions for TA-II (near the HWMF), the southeast corner of TA-III (near the existing RMWMF/future CWMF), and the northeast corner of TA-III (near the AHCF and TTF). Wind roses are also shown on the Unit-specific topographic maps.

A.5.3 Surrounding Land Use (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv])

Albuquerque is the largest population center in Bernalillo County and also the closest population center to KAFB and SNL/NM. According to Census 2000 data, the total population of the Albuquerque metropolitan area is 448,607 (U.S. Census Bureau, 2000). This population includes permanent residents of KAFB living in the KAFB housing areas. An additional 108,071 people live outside the Albuquerque metropolitan area but within Bernalillo County (U.S. Census Bureau, 2000).

SNL/NM is essentially surrounded by KAFB, with co-use agreements on some portions of KAFB. An additional 22,500-acre area to the east of KAFB has been withdrawn from the U.S. Forest Service (USFS) for the exclusive use of KAFB. High explosive tests, explosives storage, and other operations are buffered and barricaded by the mountainous terrain toward the eastern edge of this withdrawal area. Areas to the west and south, by agreements with the State of New Mexico and Isleta Pueblo, serve as buffer zones for other test operations.

Land use in the vicinity of SNL/NM and KAFB is urban to the northwest, north, and northeast. Undeveloped grazing land of Isleta Pueblo is located to the south. Undeveloped public grazing land lies to the west and southwest of KAFB and the buffer zones.

The urbanized area immediately northeast, north, and northwest of SNL/NM is predominantly residential, with commercial development along more heavily-traveled streets. Military (i.e., KAFB) housing is located north of F Street (adjacent to the northern edge of SNL/NM TA-I). Additional military housing is located west of Pennsylvania Avenue, north of Hardin Blvd (west of SNL/NM TA-1), as shown on Figure A-2. Albuquerque International Sunport is located west of the northern part of KAFB. Figure A-8 shows land uses for the areas adjacent to and within KAFB boundaries.

Some areas of KAFB and SNL/NM are within flight paths for aircraft that are taking off and landing at the Albuquerque International Sunport. Sandia/DOE studied the likelihood and potential impact of airplane crashes into SNL/NM facilities (DOE, 1999). The analysis covered several operations and facilities throughout SNL/NM, including the existing RMWMF and facilities near the HWMF and the AHCF. Such accidents were determined to be very unlikely; the annual probability varies from 2.8 in 1,000,000 at the existing RMWMF/future CWMF to 90 in 1,000,000 near the HWMF.

The SNL/NM facility is comprised of five TAs and several additional test areas spread over 17,845 acres, which are under diverse land ownership. SNL/NM occupies 2,842 acres owned by the DOE and an additional 15,003 acres that have been made available through a series of land-use agreements or permits among DOE-Albuquerque Operations, DOE Transportation Safeguards Division, KAFB, USFS, Bureau of Land Management, State of New Mexico, Phillips Laboratory (a private contractor), DOE Central Training Academy, and Isleta Pueblo.

The HWMF is approximately 2 miles south of Interstate 40 and 6 miles east of Interstate 25 and downtown Albuquerque. At their nearest points, the AHCF and the TTF are approximately 3 miles south of Interstate 40 and 6.5 miles east of Interstate 25 and downtown Albuquerque. The MSB are approximately 5 miles south of Interstate 40 and 7.5 miles east of Interstate 25 and downtown Albuquerque. The existing RMWMF/future CWMF is approximately 5.5 miles south of Interstate 40 and 6.5 miles east of Interstate 25 and downtown Albuquerque. Land use in the vicinity of each RCRA-regulated Unit is predominantly or completely industrial. There are no residential areas within 1 mile of any of the SNL/NM Units. The closest residences are in Zia Park, a KAFB residential area located approximately 1 mile west of TA-I and approximately 3.9 miles north-northwest of TA-V.

A.5.4 Drainage Control Features (20 NMAC 4.1.900/40 CFR 270.14(b)(8)(ii)

Drainage control features (e.g., run-on/runoff, drainage barriers, storm water discharge) are shown on figures provided in each Unit-specific module.

A.5.5 Waste Management Areas

Locations of the waste management areas at each SNL/NM Unit are shown on figures provided in each Unit-specific module.

A.6 GROUNDWATER MONITORING (20 NMAC 4.1.900/40 CFR 270.14[c] and 20 NMAC 4.1.500/40 CFR 264.90[a])

The nine SNL/NM Units included in Part 2 of this Sandia/DOE comprehensive Part B permit request are storage and/or treatment Units that are subject to 20 NMAC 4.1.500/40 CFR 264.101 [6-14-0010-1-03] which requires that operators of treatment, storage, or disposal facilities develop and implement corrective actions as necessary to protect human health and the environment from past, present, or future releases of RCRA-regulated wastes. None of the nine storage and/or treatment Units addressed in Part 2 have released RCRA-regulated wastes in the past.

The nine Units are not subject to the groundwater protection and monitoring requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart F [6-14-0010-1-03] because they are not regulated units or solid waste management units.

SNL/NM currently has one regulated unit (the Chemical Waste Landfill) that is subject to the groundwater protection and monitoring requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart F [6-14-0010-1-03]. Chemical Waste Landfill groundwater monitoring is addressed in Part 3 of this Sandia/DOE comprehensive Part B permit request.

A.7 OTHER PERMIT ACTIVITIES

Sandia/DOE hold numerous environmental permits issued by various agencies. Current permits, including RCRA permits, are listed in Appendix A of the General Part A included in Part 1 of this comprehensive Part B renewal request.

REFERENCES

City of Albuquerque, 1983 and amendments, “Development Process Manual,” Albuquerque, New Mexico.

COE, see U.S. Army Corps of Engineers.

DOE, see U.S. Department of Energy

Francis, R. L., 2001, Kirtland Air Force Base, Public Affairs, Albuquerque, New Mexico, Personal Communication to K. L. Peters, IT Corporation, Albuquerque, New Mexico.

Grant, P. R., 1981, “Geothermal Potential on Kirtland Air Force Base Lands, Bernalillo County, New Mexico,” SAND81-7141, Sandia National Laboratories, Albuquerque, New Mexico.

Jackson, M., 1991, Kirtland Air Force Base, Public Affairs, Albuquerque, New Mexico, Personal Communication to B. A. Sladek, IT Corporation, Albuquerque, New Mexico.

Kelley, V. C., 1977, “Geology of the Albuquerque Basin, New Mexico,” Memoir 33, New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico.

Lisenbee, A. L., L. A. Woodward, and J. R. Connolly, 1979, "Tijeras-Canoncito Fault System—A Major Zone of Recurrent Movement in North-Central New Mexico," New Mexico Geological Society Guidebook 30, pp. 89–99.

Machette, M. N., 1982, "Quaternary and Pliocene Faults in the La Jencia and Southern Part of the Albuquerque-Belen Basins, New Mexico: Evidence of Fault History from Fault-Scarp Morphology and Quaternary Geology," New Mexico Geological Society Guidebook, 33rd Field Conference, Albuquerque Country II, pp. 161-169.

Maynard, S. R., L. A. Woodward, and D. L. Giles, 1991, "Tectonics, Intrusive Rocks, and Mineralization of the San Pedro-Ortiz Porphyry Belt, North-Central New Mexico," New Mexico Bureau of Mines and Mineral Resources Bulletin 137, pp. 57–69, Socorro, New Mexico.

Meyers, L., 1991, Kirtland Air Force Base, Construction and Engineering Department, Albuquerque, New Mexico, Personal Communication to B. A. Sladek, IT Corporation, Albuquerque, New Mexico.

SAIC, see Science Applications International Corporation.

Science Applications International Corporation (SAIC), 1985, "Installation Restoration Program Phase II, Confirmation/Quantification Stage I," Report 2-827-06-351-33, prepared for Sandia National Laboratories, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico

Sandia National Laboratories/New Mexico (SNL/NM), 2002, "Calendar Year 2001 Annual Site Environmental Report", SAND 2002-2415, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

~~Sandia National Laboratories/New Mexico (SNL/NM), 2004, "Calendar Year 2003 Annual Site Environmental Report", SAND 2004-2813, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.~~

U.S. Army Corps of Engineers (COE), 1979, "Special Flood Hazard Information Tijeras Arroyo and Arroyo del Coyote, KAFB, New Mexico," U.S. Army Corps of Engineers, Albuquerque, New Mexico.

U.S. Census Bureau, 2000, American FactFinder Census 2000 Summary File, U.S. Census Bureau, Washington, D.C.

~~U.S. Department of Energy, (DOE), 1999, "Sandia National Laboratories, New Mexico, Final Site-Wide Environmental Impact Statement," DOE/EIS-0281, U.S. Department of Energy, Albuquerque, New Mexico~~

APPENDIX B

SITE-WIDE WASTE ANALYSIS PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-B-iii
LIST OF FIGURES ..... SW-B-iv
ACRONYMS AND ABBREVIATIONS ..... SW-B-v
B.1 FACILITY DESCRIPTION SW-B-2
B.1.1 Description of Waste Management Units SW-B-2
B.1.2 SNL/NM Waste-Generating Processes and Activities SW-B-3
B.1.3 Types of Waste Generated at SNL/NM SW-B-7
B.1.3.1 Laboratory Chemical Waste SW-B-7
B.1.3.2 Contaminated Used Oil SW-B-7
B.1.3.3 Process Wastes SW-B-7
B.1.3.4 Explosive (Reactive) Waste SW-B-8
B.1.3.5 Batteries SW-B-8
B.1.3.6 Elemental Lead SW-B-8
B.1.3.7 Unknown Liquids and Solids SW-B-8
B.1.3.8 Contaminated Soil SW-B-9
B.1.3.9 Debris SW-B-9
B.1.3.10 Decontamination, Purge, and Treatment Waters SW-B-9
B.1.3.11 Treated Waste and Treatment Residuals SW-B-9
B.1.3.12 Containment System Liquids SW-B-9
B.1.4 Types of Waste Treated at SNL/NM Units SW-B-10
B.1.4.1 Waste Treated at the TTF SW-B-10
B.1.4.2 Wastes Treated at the Existing RMWMF/Future CWMF and AHCF SW-B-10
B.1.4.2.1 Waste Treated by Chemical Deactivation SW-B-12
B.1.4.2.2 Waste Treated by Thermal Deactivation SW-B-12
B.1.4.2.3 Waste Treated by Amalgamation SW-B-13
B.1.4.2.4 Waste Treated by Stabilization SW-B-13
B.1.4.2.5 Waste Treated by Macroencapsulation SW-B-13
B.1.4.2.6 Waste Treated by Physical Treatment SW-B-13
B.2 CHARACTERIZATION PROCEDURES SW-B-14
B.2.1 Overall Waste Characterization SW-B-15
B.2.1.1 Data Quality Objectives SW-B-15
B.2.1.2 Waste Characterization Process SW-B-16
B.2.2 Characterization of Unknown Wastes SW-B-24
B.2.3 Characterization of Mixed and Blended Wastes SW-B-25
B.2.4 Characterization of Wastes to be Treated at SNL/NM SW-B-25
B.2.4.1 Waste to be Treated at the TTF SW-B-26
B.2.4.2 Waste to be Treated at the Existing RMWMF/Future CWMF and AHCF SW-B-31
B.2.5 Characterization of Treated Wastes SW-B-31
B.2.5.1 Treated Wastes at the TTF SW-B-32
B.2.5.2 Treated Wastes at the Existing RMWMF/Future CWMF and AHCF SW-B-33
B.2.6 Verification and Reevaluation Frequencies SW-B-35
B.2.6.1 Verification of Wastes SW-B-35
B.2.6.2 Reevaluation of Waste Streams SW-B-36

TABLE OF CONTENTS (Concluded)

B.3 USE OF AVAILABLE KNOWLEDGE SW-B-37
B.3.1 Acceptable Knowledge SW-B-38
B.3.2 Process Knowledge SW-B-38
B.4 WASTE SAMPLING AND ANALYSIS SW-B-40
B.4.1 Proposed Analytical Parameters and Methods SW-B-41
B.4.2 Criteria and Rationale for Parameter Selection SW-B-42
B.4.3 Waste Sampling SW-B-42
B.4.4 Waste Analysis SW-B-45
B.4.4.1 Sample Handling, Preservation, and Storage SW-B-48
B.4.4.2 Analytical Laboratory Selection and Analytical Methods SW-B-48
B.5 OFF-SITE WASTE ACCEPTANCE PROCEDURES SW-B-49
B.5.1 Waste Manifest Verification SW-B-50
B.5.2 Waste Shipment Verification SW-B-50
B.5.3 Waste Description Verification SW-B-50
B.6 SPECIAL PROCEDURAL REQUIREMENTS SW-B-52
B.6.1 Procedures for Ignitable, Reactive, and Incompatible Wastes SW-B-52
B.6.2 Procedures to Ensure Compliance with LDR Requirements SW-B-52
B.6.2.1 Storage Prohibitions SW-B-53
B.6.2.2 Characterization for LDR Compliance: Wastes Generated Through Treatment of RCRA-Regulated Wastes at SNL/NM Units SW-B-53
B.6.2.3 Characterization for LDR Compliance: Wastes From Off-Site Sources SW-B-54
B.6.3 Procedures to Ensure Compliance with Air Emission Requirements SW-B-55
B.7 RECORDS SW-B-56
REFERENCES SW-B-56

LIST OF TABLES

Table No.	Title
B-1	Descriptions of Types of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units
B-2	Parameters, Characterization Methods, and Rationale ~~for Parameter Selection~~ for Types of Wastes Generated ~~to be Stored and/or Treated~~ at Sandia National Laboratories/New Mexico ~~Waste Management Units~~
B-3	Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units
B-4~~3~~	Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste
B-5~~4~~	Recommended Sample Containers, Preservation Techniques, and Holding Times

LIST OF FIGURES

Figure No.	Title
B-1	Decision Flow Logic Diagram for Managing Off-Site Generated Waste at Sandia National Laboratories/New Mexico

ABBREVIATIONS AND ACRONYMS

20 NMAC 4.1.*XX*	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *XX*
40 CFR *XXX.XX*	Code of Federal Regulations, Title 40, Part *XXX*, Section *XXX.XX*
AHCF	Auxiliary Hot Cell Facility
ASTM	American Society for Testing and Materials
CWMF	Consolidated Waste Management Facility
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DR	disposal request
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCO	Federal Facilities Compliance Order
KAFB	Kirtland Air Force Base
LDR	land disposal restriction
MSDS	Material Safety Data Sheet
PETN	pentaerythritol tetranitrate
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
R&D	research and development
RMWMF	Radioactive and Mixed Waste Management Facility
RTL	regulatory threshold limit
Sandia	Sandia Corporation

LIST OF ABBREVIATIONS/ACRONYMS (Concluded)

SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semivolatile organic compound
TC	toxicity characteristic
TCLP	~~t~~Toxicity ~~c~~Characteristic ~~l~~Leaching ~~p~~Procedure
TSDF	treatment, storage, ~~or~~ and disposal facility
TTF	Thermal Treatment Facility
UHC	underlying hazardous constituent
Unit	RCRA-regulated waste management unit
VOC	volatile organic compound
WAP	waste analysis plan

SITE-WIDE WASTE ANALYSIS PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This waste analysis plan (WAP) presents information on the chemical and physical nature of Resource Conservation and Recovery Act (RCRA)-regulated waste stored and/or treated at the Sandia National Laboratories/New Mexico (SNL/NM) RCRA-regulated waste management units (Units) described in Section 1.0 of this Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application, hereinafter referred to as the ~~SNL/NM~~ General Part B, and listed in Section B.1.1 of this WAP. The Units are co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE).

Sandia/DOE perform storage and treatment of the RCRA-regulated wastes listed in the "General Part A Permit Renewal Request/Application," Revision 7~~5~~.0, (SNL/NM, 2004~~3~~) at the Units described~~listed~~ in Section B.1.1. This WAP applies to those wastes only. It addresses the waste characterization necessary to perform waste storage and treatment activities requiring a permit (i.e., the activities ~~as~~ described in the General Part B and Unit-specific modules). Sandia/DOE do not perform disposal of RCRA-regulated wastes under the terms of the existing or requested permit. Therefore, this WAP does not address waste characterization necessary for disposal.

This WAP has been prepared to meet the requirements set forth in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V (20 NMAC 4.1.500), incorporating by reference the Code of Federal Regulations, Title 40, Part 264, including Section 264.13 (40 CFR 264.13), revised October 1, 2003~~June 14, 2000~~ [10-1-03~~6-14-00~~]. It has also been prepared to meet additional waste analysis requirements specified in 20 NMAC 4.1.900/40 CFR 270.14(b) [~~6-14-00~~10-1-03] and 20 NMAC 4.1.800/40 CFR 268.7(b) and 268.9(d) [~~6-14-00~~10-1-03] applicable to wastes treated at SNL/NM Units. Together, the information in this appendix, in the General Part B, and in each Unit-specific module meets the applicable regulatory requirements. The waste analysis information contained in this WAP applies to the SNL/NM Units where RCRA-regulated wastes are stored in containers and/or treated in containers or miscellaneous units.

The content of this WAP follows the guidance provided in "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual" (U.S. Environmental Protection Agency [EPA], 1994), as the guidance applies to activities requiring a permit. The general information provided in this WAP is applicable to all SNL/NM Units; Unit-specific information is also provided herein as necessary to address Unit-specific waste characterization ~~and analysis~~ requirements. This WAP is organized as follows:

Section B.1 ~~Site~~ Facility Description: Includes a general description of SNL/NM; a list of SNL/NM Units and associated waste management activities; ~~and~~ general descriptions of the types of RCRA-regulated waste that are ~~types~~ stored and/or treated at the Units; and a general description of the activities that generate RCRA-regulated wastes managed at the Units.

Section B.2~~3~~ Characterization Procedures: Includes the characterization approach (i.e.~~g.~~, acceptable knowledge supplemented by sampling and analysis) for RCRA-regulated waste stored and/or treated at SNL/NM Units, ~~and~~ a discussion of the data quality objectives (DQOs) and process used to ensure that the characterization data are suitable for their intended purposes, and a discussion of the rationale for specific data.

Section B.3 Use of Available Knowledge: Includes a discussion of the application of acceptable knowledge and available information for waste characterization.

Section B.42 Sampling and Waste Analysis Parameters: Includes a discussion of the proposed sampling and analytical parameters and methods used at SNL/NM and the criteria/rationale for the parameter selection.

Section B.54 Off-Site Waste Acceptance Procedures: Includes a discussion of procedures in place for acceptance of RCRA-regulated waste from off-site facilities.

Section B.65 Special Procedural Requirements: Includes a discussion of the procedures in place for ignitable, reactive, and incompatible wastes; procedures to ensure compliance with land disposal restrictions (LDRs) for on-site activities that require a permit; and procedures to ensure compliance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC [6-14-0010-1-03].

Section B.7: Records: Includes a discussion of records maintained for waste characterization and analytical data.

B.1 FACILITY DESCRIPTION [20 NMAC 4.1.900/40 CFR 270.14(b)(1)]

SNL/NM is a multidisciplinary laboratory engaged in the research and development (R&D) of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others.

SNL/NM is located in Bernalillo County, New Mexico, adjacent to the southeastern boundary of Albuquerque. SNL/NM occupies an area of about 2,842 acres located in the eastern portion of the 52,233-acre Kirtland Air Force Base (KAFB). SNL/NM consists of five technical areas, designated Technical Areas I through V, as well as remote test areas. A detailed description of the SNL/NM facility is included in Appendix A of this permit renewal request/application.

B.1.1 Description of Waste Management Units

SNL/NM active RCRA-regulated waste management Units are described in detail in the General Part B and Unit-specific modules. The Units and associated waste management activities are:

- The Hazardous Waste Management Facility: Container storage and repackaging of RCRA-regulated wastes;
- The Thermal Treatment Facility (TTF): Thermal treatment of a specific RCRA-regulated waste stream by open burning in a miscellaneous unit;
- The Existing Radioactive and Mixed Waste Management Facility (RMWMF): Container storage and repackaging of RCRA-regulated wastes and treatment of RCRA-regulated wastes in containers;

- Future Consolidated Waste Management Facility (CWMF) at the existing RMWMF: The CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes) following physical modifications to RMWMF facilities;

- Auxiliary Hot Cell Facility (AHCF): Container storage and repackaging of RCRA-regulated wastes and treatment of RCRA-regulated wastes in containers; and

- Manzano Storage Bunkers: Container storage of RCRA-regulated wastes.

The General Part A lists the EPA Hazardous Waste Numbers that may* be assigned to the wastes stored in containers at SNL/NM Units1. The General Part A also lists the EPA Hazardous Waste Numbers that may* be assigned to the wastes that will be treated in containers or the miscellaneous unit at SNL/NM.

~~In this WAP, the term "may" when marked with an asterisk, denotes a statement where the uncertainty implied by "may" instead of "will" is technically accurate and appropriate.~~

B.1.2 SNL/NM Waste-Generating Processes and Activities

RCRA-regulated waste is generated at SNL/NM from design, development, and testing of weapon systems and components; material research; pulsed power research; reactor safety research; support activities; RCRA corrective action activities (through the Sandia/DOE Environmental Restoration [ER] project); and decontamination and decommissioning (D&D) activities. Sandia/DOE also accept small volumes of RCRA-regulated waste for storage and/or treatment from off-site facilities. Some of the RCRA-regulated waste generated at SNL/NM also meets the definition of low-level or transuranic waste as these terms are defined in DOE Order 435.1-1 (DOE, 1999).

It is not feasible to provide detailed descriptions of all possible wastes that could be managed at one or more of the SNL/NM Units. Table B-1 summarizes information on RCRA-regulated waste types typically generated at SNL/NM. The following sections contain general descriptions of the typical waste types ~~generated at SNL/NM that are and/or will be stored and/or treated at the Units,~~ the associated waste-generating processes and/or activities ~~that generate the waste type~~, and the waste forms associated with each type. For the purposes of this WAP, a waste type is a general category used to describe one or more wastes or waste streams that share key features (e.g., type of waste-generating process, waste form). Also f~~F~~or the purposes of this WAP, a waste stream is defined as waste that is routinely generated as part of a well-defined waste-generating process and is distinguishable from other waste by some unique combination of one or more of the following: specific waste source or generating process; EPA Hazardous Waste Numbers; SNL/NM Unit-specific handling requirements; off-site treatment, storage, and disposal facility (TSDF) handling

1 In this WAP, the term "may" when marked with an asterisk, denotes a statement where the uncertainty implied by "may" instead of "will" is technically accurate and appropriate.

requirements; LDR status; waste compatibility issues; or waste characterization requirements.

Table B-1
Descriptions of Types of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Principal Waste-Generating Activity	Basis for HazardousRCRA-regulated Waste Designation	Potential[a] EPA Hazardous Waste Numbers	Potential[a] HazardousRCRA-regulated Constituents and/or Characteristics in the Waste
Laboratory Chemical Waste	Weapon systems and components design, development, and testing and material research	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 All P- and U-EPA Hazardous Waste Numbers	Ignitability Corrosivity Reactivity Toxicity [c] Discarded commercial chemical products and off-specification species
Contaminated Used Oil	Weapon systems and components design, development, and testing, material research, pulsed-power research, reactor safety research, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents
Process Wastes	Weapon systems and components design, development, and testing, material research, ER Project activities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents
Explosive Waste	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D003 D011 F003	Ignitability Reactivity Silver Acetone
Used Batteries	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D002 D003 D006 D007 D008 D009 D011	Corrosivity Reactivity Cadmium Chromium Lead Mercury Silver
Elemental Lead	Pulsed-power research, reactor safety research, ER Project and D&D aActivities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (oOff-site waste)	D008	Lead
Unknown Liquids and Solids	Legacy wastes from historical weapons system design, development and testing;, materials research;, and ER Project, and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043	Ignitability Corrosivity Reactivity Toxicity[c]

Table B-1 (Concluded)
Descriptions of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Principal Waste-Generating Activity	Basis for Hazardous~~RCRA-regulated~~ Waste Designation	Potential[a] EPA Hazardous Waste Numbers	Potential[a] Hazardous~~RCRA-regulated~~ Constituents and/or Characteristics in the Waste
Contaminated Soil	ER Project and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005 F039	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents Leachate
Debris	Weapon systems and components design, development, and testing, material research, pulsed-power research, reactor safety research, support activities, ER Project and D&D activities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (~~Off~~off-site waste)	D001 D002 D003 D004-D043 F001-F005 F039	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents Leachate
Decontamination, Purge, and Treatment Waters	ER Project and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D002 D004-D043 F001-F005 F039	Corrosivity Toxicity[c] Spent solvents Leachate
Treated Waste and Treatment Residuals	Support activities (radiation protection and waste management)	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005 ~~F039~~	Ignitability Corrosivity Reactivity Toxicity[c] Spent -solvents ~~Leachate~~
Containment System Liquids	Support activities (waste management)	Acceptable Knowledge[b] s~~S~~upplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents

a "Potential" is defined as possibly present

b "Acceptable knowledge" is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994)

c A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, Test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1986 and all approved updates), the sample or the extract from a representative sample of the waste contains any of the constituents listed (D004-D043) at a concentration equal to or greater than the respective value given in 20 NMAC 4.1.200/40 CFR 261 Subpart C (~~6-14-00~~10-1-03)

d "Fingerprint analysis" refers to checks and field methods designed to quickly identify chemical properties (e.g., pH, density, chlorine content, etc)

Individual containers of waste packed into a single lab pack container do not constitute a waste stream. RCRA-regulated waste types may* be of uniform composition (i.e., homogeneous) or of dissimilar/diverse composition (i.e., heterogeneous). ~~Table B-1 summarizes information on RCRA-regulated waste types typically generated at SNL/NM.~~ T~~his t~~able B-1 includes brief waste type descriptions, the associated waste-generating process or activity, and the characterization basis for RCRA-regulated waste designation. Table B-1 also addresses the variability of each waste type by listing the potential EPA Hazardous Waste Numbers and potential hazardous waste~~RCRA-regulated~~ constituents and/or characteristics associated with each waste type. Each type of waste may* include one or more wastes and waste streams.

B.1.3 Types of ~~Stored~~ Waste Generated at SNL/NM

RCRA-regulated wastes are stored in containers at various SNL/NM Units. Typical RCRA-regulated waste types~~streams~~ are described below~~in the following subsections~~. Section 1.2 in the ~~SNL/NM~~ General Part B provides more specific information on waste types that are considered to be acceptable at each Unit, and describes waste-handling practices, including Unit-specific container requirements. All waste types described in this WAP are acceptable for storage at each Unit except the TTF. Characterization of these wastes is discussed in Section B.2.

B.1.3.1 Laboratory Chemical Waste

Laboratory chemical waste includes commercial chemical products or manufacturing chemical intermediates (in solid, liquid, or contained gas forms) such as reagents, metal powders, oxidizers, reactive metals, elemental mercury, elemental sodium, and other materials that have Material Safety Data Sheets (MSDSs) or other product documentation. It also includes excess commercial chemical products; solid laboratory material (such as laboratory wipes contaminated with solvent or lead solder); or manufacturing chemical intermediates that have exceeded their shelf life, are excess to SNL/NM needs, are off-specification, or are no longer usable for their intended purpose. SNL/NM initial generators generally produce this type of waste during various R&D and testing operations. Some of these laboratory chemical wastes also exhibit the hazardous waste~~RCRA-regulated~~ characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

B.1.3.2 Contaminated Used Oil

Used oils, a liquid waste form, from vacuum pumps and other machinery may* be contaminated with listed RCRA-regulated wastes or exhibit the hazardous waste~~RCRA-regulated~~ characteristics of ignitability or toxicity. Specific constituents depend on the processes that generated the contaminated used oil.

B.1.3.3 Process Wastes

Process wastes, which can be liquid or solid chemicals, solutions, ~~or~~ mixtures, or wastewaters, are generated as a result of various activities, including experiments and routine operational processes. Typical RCRA-regulated process wastes include, but are not limited to, acidic solutions, alkaline solutions, oxidizers, and wastewaters. These wastes may* exhibit hazardous waste~~RCRA-~~

regulated characteristics (e.g., corrosivity, reactivity, toxicity) or be RCRA-regulated listed waste from nonspecific sources (e.g., spent solvents).

B.1.3.4 Explosive (Reactive) Waste

An explosive material is defined as a chemical compound or mixture containing any oxidizing and combustible units, or other ingredients in such proportions, quantities, or packing that ignition by fire, friction, concussion, percussion or detonation of any part thereof may* (and is intended to) decompose with the production of a considerable quantity of heat and gas. Therefore, explosive waste and explosive-contaminated waste exhibit the hazardous waste characteristic of reactivity described in 20 NMAC 4.1.200/40 CFR 261.23 [6-14-0010-1-03], if they are capable of detonation or explosive reaction when subjected to a strong initiating source or if heated under confinement. Examples of explosive (reactive) waste include components and test units that contain an explosive, or explosive fragments, powders, and residues. Some of these wastes also exhibit hazardous wasteRCRA-regulated characteristics of ignitability and/or toxicity.

Explosive waste and explosive-contaminated waste are generated at SNL/NM primarily from R&D activities. Explosive waste generally consists of discrete pieces of solid explosive material, whereas explosive-contaminated waste typically consists of solid or liquid wastes that have been contaminated with explosive material. A specific type of explosive waste is managed at the TTF and is described in greater detail in Section B.1.4.1.

B.1.3.5 Used Batteries

Batteries, a solid waste form, are used in numerous SNL/NM activities, and may* exhibit the hazardous waste characteristics of reactivity, corrosivity, or contain toxicity (due to the presence ofheavy metals such as(e.g., cadmium, mercury, and lead)., lithium, or acidic compounds. Information about the battery content, hazards, and EPA Hazardous Waste Numbers is determined using manufacturer's data. For example, unfired thermal batteries contain metals and exhibit the hazardous wasteRCRA-regulated characteristics of reactivity and toxicity; lithium batteries exhibit the characteristic of reactivity; and mercury batteries, silver batteries, and rechargeable or nickel-cadmium batteries exhibit the characteristic of toxicity.

B.1.3.6 Elemental Lead

Solid elemental lead items that cannot be reused (e.g., for radiation shielding or containment) or areis in a form that is unsuitable for recycling directly may* be declared waste. These wastes exhibit the hazardous wasteRCRA-regulated characteristic of toxicity. Alternatively, these items may* be managed as scrap metal.

B.1.3.7 Unknown Liquids and Solids

Unknown liquids and solids consist largely of legacy wastes from historical weapons systems design, development and testing;, material research;, and ER Project, and D&D activities. Typical RCRA-regulated unknown wastes include, but are not limited to, unlabeled laboratory chemicals, residues in equipment and containers, and solid items that are smaller than debris (as defined in 20

NMAC 4.1.800/40 CFR 268.2). Characterization depends on documented historical activities and results of any site investigation (for ER sites). These wastes may* exhibit hazardous waste RCRA-regulated characteristics (e.g., ignitability, corrosivity, reactivity, and/or toxicity).

B.1.3.8 Contaminated Soil

This waste type includes soil, a solid waste form, from the ER Project activities, or other cleanup and excavation operations. Characterization of contaminated soil depends upon the documented historical activities that occurred at the site and the results of site investigation and sampling and analysis activities.

B.1.3.9 Debris

This waste type includes material generated during cleaning operations, D&D operations, emergency response, waste management, and protection of personnelpersonal protective procedures. These wastes are solid, usually heterogeneous, compactable and non-compactable materials that meet the definition of hazardousRCRA-regulated debris in 20 NMAC 4.1.800/40 CFR 268.2). Compactable materials include but are not limited to items such as personal protective equipment, rags, wipes, swipes, paper, and filters. Non-compactable materials include but are not limited to equipment, components, electronic hardware, experimental remnants, cables, tools, machining parts or debris, building materials, and glassware. Debris may* be contaminated with or contain RCRA-regulated listed waste(s) and/or exhibit one or more hazardousRCRA-regulated waste characteristics (i.e., reactivity, corrosivity, ignitability, and/or toxicity).

B.1.3.10 Decontamination, Purge, and Treatment Waters

This waste type includes decontamination, purge, and treatment water (i.e., wastewater) from ER Project and D&D activities. The hazardous wasteRCRA-regulated characteristics depend upon the documented historical activities that occurred at the site, the results of site investigation(s), and sampling and analysis (if needed). Decontamination, purge, or treatment waters may* be contaminated with or contain RCRA-regulated listed waste(s) and/or exhibit a hazardous RCRA-regulated waste characteristic (i.e., corrosivity and/or toxicity).

B.1.3.11 Treated Waste and Treatment Residuals

Secondary waste types (i.e., solids, liquids, or contained gases) generated by treatment operations at SNL/NM Units will be stored on site pending determination of success in meeting treatment goals, subsequent treatment, and/or transportation to appropriate off-site TSDFs, as described in Section B.1.4.

B.1.3.12 Containment System Liquids

This waste type includes liquids that accumulate in containment system structures (e.g., spill pallets, trenches). Containment system liquids may* be contaminated with or contain RCRA-

regulated listed waste(s) or exhibit a hazardousRCRA-regulated waste characteristic (i.e., reactivity, corrosivity, ignitability, and/or toxicity), depending on the source of the accumulated liquid.

B.1.4 Types of Waste Treated Wasteat SNL/NM Units

RCRA-regulated waste is treated at the TTF, which is a miscellaneous unit. RCRA-regulated wastes are treated in containers at the existing RMWMF/future CWMF and AHCF. Typical RCRA-regulated wastes and waste streams that are treated at SNL/NM Units are described in the following sections. Sandia/DOE personnel use the waste characterization procedures described in this WAP (Section B.23) to determine whether treated wastes and treatment residues are RCRA-regulated wastes, to determine whether they meet the treatment standards in 20 NMAC 4.1 800/40 CFR 268, and to assign appropriate EPA Hazardous Waste Numbers.

B.1.4.1 Explosive Waste Treated at the TTF

The Eexplosive (D003) waste treated at the TTF is a silver acetylide/silver nitrate (SASN) mixture that is generated as a result of a specific process that is well defined and well controlled, enabling Sandia/DOE to characterize the waste stream on the basis of knowledge of the process and the raw materials used. SASN is present in the solid and liquid wastes treated at the TTF. The waste also meets the definition of ignitable waste (D001), and often may* bears EPA Hazardous Waste Numbers D011 and F003, depending on the presence of silver concentration and the presence of spent solvents. The treatment is performed to eliminate the hazardous waste characteristics of reactivity and ignitability. The waste is composed of:

- A liquid or slurry containing varying amounts of acetone, acetonitrile, nitric acid, water, and typically some SASN crystals. The liquid or slurry may* also contain pentaerythritol tetranitrate (PETN), another explosive.

- Solid items that may* contain small quantities of SASN, including paper wipes, cotton rags and swabs, filter elements, incidental silver nitrate that did not react to form SASN, and traces of Viton™ fluoroelastomer. Small quantities of PETN may* also be present on the solids.

Specific information about the treatment process is included in Section 8.0 of Module II.

B.1.4.2 Wastes Treated in Containers at the Existing RMWMF/Future CWMF and AHCF

RCRA-regulated wastes that are treated at the existing RMWMF/future CWMF and AHCF may* be generated from specific R&D processes and activities. Other wastes may* be manufactured items or radioactive mixed wastes that are not amenable to sampling and analysis. Consequently, Sandia/DOE characterize RCRA-regulated wastes and waste streams treated at the existing RMWMF/future CWMF and AHCF using process knowledge, supplemented by sampling and analysis as needed. The process knowledge often includes knowledge of the item or a full accounting of the raw materials used in generating the waste. To ensure that detailed and accurate waste characterization exists, the process outlined in Section B.23.1 is used.

Wastes that are treated in containers at the existing RMWMF/future CWMF and AHCF include are any of the following:

- Solid items exhibiting the hazardous wasteRCRA-regulated characteristics of ignitability and/or reactivity;,
- Solid items (including debris) exhibiting the hazardous waste characteristic of toxicity (excluding the high mercury subcategory) or containing spent solvents or commercial chemical products;,
- Liquid wastes and wastewaters exhibiting the hazardous waste characteristics of ignitability, corrosivity, or reactivity;, and
- Liquid wastes and wastewaters containing toxicity characteristic (TC) metals (excluding the elemental mercury and high mercury subcategories).

Treatment processes and the associated treatment goals at the existing RMWMF/future CWMF and AHCF are discussed in Section 8.0 of Modules III and V, respectively. They include:

- Chemical deactivation to eliminate the hazardousRCRA-regulated waste characteristics of ignitability, corrosivity, and/or reactivity.,
- Thermal deactivation to eliminate the hazardous wasteRCRA-regulated characteristic of reactivity in reactive wastes, including explosives other than wastes (excluding primary explosives).
- Amalgamation to immobilize elemental mercury into a solid, leach-resistant form.
- Stabilization to immobilize hazardous waste toxicity characteristicRCRA-regulated metals and/or eliminate free liquids., and
- Macroencapsulation to immobilize hazardous chemical constituents.,
- Physical treatment to change the physical character of the waste to make it more amenable to subsequent treatment and/or storage, or to reduce waste volume.,

Specific information on the treatment processes used at the RMWMF and AHCF is presented in Section 8.0 of Modules III and V, respectively.

The RCRA-regulated wastes to be treated at the existing RMWMF/future CWMF and the AHCF typically are assigned one or more of have the following EPA Hazardous Waste Numbers: D001-D011, D018-D043, and F001-F005. As noted in the Part A, oOther RCRA-regulated wastes listed in the Part A may* also be treated if the treatment methods are appropriate. The EPA Hazardous Waste Numbers for RCRA-regulated waste to be treated at the existing RMWMF/future CWMF and AHCF are determined through the characterization process known as a result of acceptable knowledge records produced by the initial generator and verified by Unit personnel in accordance with the procedures described in Section B.23.1, in which , available Acceptable knowledge is supplemented by sampling and analysis., as described in Section B.3.1.

B.1.4.2.1 Waste Treated by Chemical Deactivation

RCRA-regulated wastes are treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF to remove the hazardous wasteRCRA-regulated characteristics of ignitability, corrosivity, and/or reactivity. RCRA-regulated wastes that are chemically deactivated at the existing RMWMF/future CWMF and AHCF generally consist of solids or liquids generated during R&D activities, and are described below.

Laboratory cChemical wWaste This waste type consists of commercial chemical products;, manufacturing chemical intermediates;, solid laboratory materials (such as laboratory wipes);, or excess, off-specification, or no longer usable chemical products that may* contain water-reactive metals (such as elemental sodium or lithium);, pyrophoric metal powders and particulates;, or acidic or alkaline liquids.

Process wWaste This waste type consists of liquid or solid chemicals, solutions, or mixtures that are acidic, alkaline, or oxidizers.

Explosive (reactive) wWaste This waste type consists of explosive residues and powders.

B.1.4.2.25 Waste Treated by Thermal Deactivation

RCRA-regulated wastes are treated by thermal deactivation at the existing RMWMF/future CWMF to remove the hazardous waste characteristic of reactivity. These wastes generally consist of solid items and are generated primarily from R&D activities and the ER Pproject activities, and are described below.

Batteries consist of unfired waste thermal batteries that contain reactive material.

Explosive wWaste This waste type consists of static-sensitive explosives and explosive components, and solid items (e.g., paper towels, rags, and wipes) contaminated with static-sensitive explosives. The quantity of explosive (reactive) waste that is thermally treated at the existing RMWMF/future CWMF at any one time will be equivalent to 25 grams of trinitrotoluene or less. Furthermore, the explosive waste thermally treated at the existing RMWMF/ future CWMF will not be:

- Primary explosives,
- Potentially fragment-producing when treated,
- Explosives that are confined,
- Explosives packaged as a unit with items that could become projectiles (e.g., wood, metal, or plastic) when treated, or
- Unknown or uncharacterized explosives.

B.1.4.2.36 Waste Treated by Amalgamation

RCRA-regulated wastes are treated by amalgamation at the existing RMWMF/future CWMF to immobilize elemental mercury into a solid, leach-resistant form that has minimal potential for emission of mercury vapor. The RCRA-regulated waste that is treated by amalgamation is liquid elemental mercury.

B.1.4.2.4 Waste Treated by Stabilization

RCRA-regulated wastes are treated by stabilization at the existing RMWMF/future CWMF and AHCF to immobilize hazardous waste toxicity characteristic constituents (metals) and/or eliminate free liquids. RCRA-regulated wastes that are stabilized at the existing RMWMF/future CWMF and AHCF generally consist of liquids, soils, and particulate-type wastes.

Laboratory cChemical wWaste This waste type consists of commercial chemical products, manufacturing chemical intermediates, small pieces of solid laboratory materials such as laboratory wipes, or excess, off-specification, or no longer usable chemical products in particulate or liquid forms that contain or are contaminated with hazardous wasteRCRA-regulated constituents. This waste is generated primarily by R&D activities.

Process wWaste This waste type consists of liquid or solid chemicals, solutions, or mixtures that contain or are contaminated with hazardous wasteRCRA-regulated constituents. This waste is generated primarily from R&D activities. The liquids are typically aqueous or oils.

Contaminated sSoil This waste type consists of soils that are contaminated with hazardous wasteRCRA-regulated constituents. This waste is generated primarily from ER Project and other cleanup and excavation operations.

B.1.4.2.52 Waste Treated by Macroencapsulation

RCRA-regulated solid waste items, including debris, are treated by macroencapsulation at the existing RMWMF/future CWMF and AHCF to immobilize hazardous wasteRCRA-regulated constituents.

Debris This waste type consists of solid, heterogeneous, compactable and non-compactable solids that contain or are contaminated with hazardous wasteRCRA-regulated constituents. This waste is generated primarily by R&D, D&D, and ER Project activities.

B.1.4.2.63 Waste Treated by Physical Treatment

RCRA-regulated wastes are treated physically at the existing RMWMF/future CWMF and AHCF to reduce waste volume and change the physical character of the waste to make it more amenable to subsequent treatment and/or storage. RCRA-regulated wastes that are physically treated at the existing RMWMF/future CWMF and AHCF generally consist of solid items that exhibit the hazardous waste characteristics of ignitability, reactivity, and/or toxicity, and are described below.

Process wWaste This waste type consists of solid items such as laboratory equipment that can be dismantled and other laboratory items that were used in experiments or other processes. This waste is generated primarily from R&D activities.

Unknown sSolids This waste type consists of legacy wastes that originated from historical laboratory activities andthat can be dismantled. Waste items with hazardous wasteRCRA-regulated constituents vary in size. The wastes typically exhibit the characteristics of ignitability, reactivity, and/or toxicity.

Debris This waste type consists of solid, heterogeneous, compactable and non-compactable materials that contain or are contaminated with hazardous wasteRCRA-regulated constituents. This waste is generated primarily by R&D, D&D, and ER Project activities.

Commercial pProducts This waste type consists of aerosol cans or other pressurized containers of commercial products that often exhibit the hazardous wasteRCRA-regulated characteristics of ignitability and/or toxicity. They may* also be discarded commercial chemical products. This waste is generated by R&D and other activities.

B.23 CHARACTERIZATION PROCEDURES [20 NMAC 4.1.500/40 CFR 264.13(a)(1) and 264.13(b)(2); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

The approach to the waste characterization of wastes is based on the use of existing information regardingand the chemical and physical nature of the waste or waste stream and the activities that generated it, supplemented by data from sampling and analysis as needed. This approach is consistent with "Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste (EPA and U.S. Nuclear Regulatory Commission [NRC], 1997), and with EPA's waste analysis guidance (EPA, 1994).

In this WAP and in the rest of the General Part B, the personnel associated with a RCRA-regulated waste at a given point during management at SNL/NM are sometimes referred to as the "generator" (e.g., the "generator" completes a disposal request). The term "generator," as it appears in this context, is used only to denote an individual person and does not imply the regulatory meaning of "generator" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], particularly with respect to hazardousRCRA-regulated waste determination as required in 20 NMAC 4.1.300/40 CFR 262.11 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], Sandia Corporation is a "generator" and a "person" responsible for determining whether a waste is subject to regulation in accordance with 20 NMAC 4.1.300/40 CFR 262.11 [6-14-0010-1-03]. SNL/NM is a large research facility, and many individuals (including those employed through contract to Sandia Corporation) are involved with generation and subsequent management of RCRA-regulated wastes. These include personnel performing research and other waste-generating activities, and personnel performing environment, safety, and health activities (including waste management) to support Sandia operations and comply with regulatory requirements. HazardousRCRA-regulated waste determination at SNL/NM is a collaborative effort between the individuals involved with the generation of RCRA-regulated waste and the Unit personnel. This approach is consistent with the process described in EPA's clarifying memo (Cotsworth, 2002). Characterization procedures require that each initial waste generator provide documented information on the waste or waste stream. This is accomplished by using acceptable knowledge and/or sampling and analysis, which are described in the following sections. The completion of characterization documentation allows for the assignment of EPA Hazardous Waste Numbers, the

proper management of the waste, and the identification of underlying hazardous constituents (UHCs) and LDR compliance status for wastes that are to be treated at SNL/NM Units. All initial waste generators must certify, based on their knowledge of the waste, that the information included in the characterization documentation is complete and accurate.

Thise following sections describes in detail the characterization strategy and procedures that apply to RCRA-regulated waste managed at SNL/NM Units. Use of available information is discussed in Section B.3, and sampling and analysis are discussed in Section B.4.

B.23.1Overall Waste Characterization

Sandia/DOE have established a DQO process to ensure that the information used to characterize wastes for on-site management is adequately for that purpose.characterized and to assist Sandia in Sandia/DOE are able to makeing required waste determinations and manageing RCRA-regulated waste in compliance with applicable regulatory requirements at SNL/NM Units. The process is described below and includes the following key elements:

- Sandia/DOE establish DQOs for waste characterization information (Section B.2.1.1).
- Initial waste generators supply waste characterization information regarding the physical and chemical properties of the waste and based on the activity generating the waste.
- The information provided by the initial generator, together with available information about waste types and the characterization guidelines in this WAP, is an important element of the total characterization process and is used by Unit personnel to determine what, if any, additional characterization is required.
- The initial generator and Unit personnel collaborate as needed to gather additional information if required information and for makeing waste determinations.
- Unit personnel assume responsibility for proper waste management (including additional waste characterization if necessary) when the waste is accepted at one of the SNL/NM Units.

B.2.1.1 Data Quality Objectives

The application of a DQO process ensures that the type, quantity, and quality of acceptable knowledge or sampling and analysis documentation and data submitted to Unit personnel are suitable for accurate waste characterization. DQOs are qualitative and quantitative statements derived from a series of seven planning steps based on the scientific method. DQOs statements applicable to waste characterization activities at SNL/NM are summarized below.

Define the Problem. A solidRCRA-regulated waste is generated at SNL/NM and will be accepted at an SNL/NM Unit for storage and/or treatment. RCRA regulations require that hazardous wastes be identified and such wastes be adequately characterized for management at the Unit in accordance with 20 NMAC 4.1.500/40 CFR 264.13 [6-14-0010-1-03].

Identify the Questions to be Answered Decision(s). Is the solid waste a RCRA-regulated hazardous waste? What are the appropriate EPA Hazardous Waste Numbers (waste codes)? Does the waste meet any of the exclusions in 20 NMAC 4.1.200/40 CFR 261.4 at the point of generation? Does the waste meet the definition of a listed hazardous waste in 20 NMAC 4.1.200/40 CFR 261 Subpart D at the point of generation? Does the waste exhibit any hazardous waste characteristics as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart C at the point of generation? Does the RCRA-regulated hazardous waste have any properties that require special management?Is acceptable knowledge adequate for waste characterization without additional information (e.g., data from sampling and analysis)? Are sampling and analysis data adequate for waste characterization without additional information?

Specify the Objectives. The characterization process is designed to provide information needed for DOE/Sandia to:

- Determine whether a solid waste is a RCRA-regulated hazardous waste,
- Assign appropriate waste codes, and
- Determine management requirements.

B.2.1.2 Waste Characterization Process

The initial generator assembles information about the waste and submits it waste characterization information to Unit personnel using a disposal request (DR) or equivalent form that is completed and certified by the initial waste generator. This initial information is supplemented as needed until Unit personnel have sufficient information to accurately characterize the waste. WhenThe completed, the DR form includes information necessary for waste determinations;, identifying physical form; accurately assigningment of EPA Hazardous Waste Numbers;, and safely handling, storingage,- and transporting of the waste by Unit personnel.

Initial generator-supplied waste description information used to characterize waste includes any of the following as needed and available: the quantity; physical form of the waste (e.g., solid, liquid, gas, wastewater);, origin and source (e.g., R&D, ER Project, unused commercial product, activity that generated the waste);, and waste characteristics and components (e.g., ignitability, corrosivity, chemicals or hazardous wasteRCRA-regulated constituents [including reactive or explosive constituents] that are contained in the waste, as well as their concentrations and proportions of chemicals and constituents, and materials in contact with the waste such as paper or plastic).

Initial-generator-supplied information also includes information regarding the presence of free liquids in containers of RCRA-regulated waste if needed for characterization and/or on-site waste management. Such information is typically obtained through initial-generator waste-characterization knowledge, visual examinations, and/or the Paint Filter Liquids Test, as appropriate.

Unit personnel review the initial-generator-supplied DR forms and any associated documentation provided with the forms (e.g., waste process documentation, technical information about the waste, and analytical results) for adequacy, completeness, data reliability, and acceptability, and determine if additional waste characterization (e.g., initial generator information, sampling and analysis) is required. Unit personnel use a DQO process to determine the adequacy of acceptable knowledge

for waste characterization and determine sampling and analysis activities that are sufficient to characterize waste if acceptable knowledge is not adequate. Unit personnel consider each waste individually. Each waste is one of the types described in Section B.1.3 or B.1.4, and Unit personnel use waste type identification to determine whether and what kind of additional information is needed to adequately characterize the waste. Types of additional information are discussed in Section B.3. If analytical data are needed to supplement the available information, they are obtained through sampling and analysis, as described in Section B.4. The information that could be required to characterize wastes for each of the waste types as generated at SNL/NM is summarized in Table B-2.

Identify Inputs to the Decision. Unit personnel review applicable initial-generator-supplied waste characterization documentation (e.g., DRs, waste-generating process description, and analytical results) for completeness and data reliability. Initial-generator-supplied waste characterization documentation includes, at a minimum:

- Initial waste generator information (e.g., name, organization),
- Waste location information,
- Waste generation frequency,
- Waste information (e.g., waste constituents; waste weight, volume, and description; container type; physical form; time the waste was generated)
- A certification signed by the initial generator regarding the accuracy of the information
- Technical information used to justify the application of acceptable knowledge as a substitute for sampling and analysis (e.g., MSDSs).

Specify Limits on Decision Errors. There is always a possibility that decisions will be in error. Precautions taken to minimize decision errors include a second review of initial-generator-supplied information and a visual inspection of the waste prior to pickup and transport to an SNL/NM Unit. After waste characterization information is entered into a waste tracking database, the information is again reviewed by Unit personnel to ensure consistency and confirm that the waste can be transported, stored, and/or treated at one of the SNL/NM Units. If Unit personnel determine that documentation provided by the initial generator is incomplete or inadequate for waste characterization, or determine or suspect changes in the waste-generating process, they Unit personnel return the documentation. If additional characterization information is required, Unit personnel work with the initial generator to obtain the necessary information. Once the waste is adequately characterized, Wwaste information is typically entered into a waste tracking database during the characterization process.

Table B-2
Parameters, Characterization Methods, and Rationale for Parameter Selection for Types of Wastes Generated to be Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[ab]	Rationale
Laboratory Chemical Waste	Acceptable Knowledge[ac] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids waste), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids waste) • Hazardous wasteRCRA-regulated metals[be] • Hazardous wasteRCRA-regulated VOCs[be] • Hazardous wasteRCRA-regulated SVOCs[be]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, and reactivity, and corrosivity characteristics • Determine corrosivity characteristic Determine waste compatibility information Determine presence of U-listed and P-listed chemicals Determine presence of spent solvents • Determine toxicity characteristic
Contaminated Used Oil	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • Hazardous wasteRCRA-regulated metals[be] • Hazardous wasteRCRA-regulated VOCs[be] • Hazardous wasteRCRA-regulated SVOCs[be]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability characteristic • Determine waste compatibility information • Determine toxicity characteristicDetermine presence of spent solvents
Process Wastes	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids waste), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids waste) • Hazardous wasteRCRA-regulated metals[be] • Hazardous wasteRCRA-regulated VOCs[be] • Hazardous wasteRCRA-regulated SVOCs[be]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristicDetermine presence of spent solvents

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale for Parameter Selection for Types of Wastes Generatedto be Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[ba]	Rationale
Explosive Waste	Acceptable Knowledge[ae] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] Ignitability • Reactivity Stability, DOT hazard class[d] • Hazardous wasteRCRA-regulated metals[be] • Hazardous wasteRCRA-regulated VOCs[be] • Hazardous wasteRCRA-regulated SVOCs[be]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability and reactivity characteristics • Determine waste compatibility information Determine toxicity characteristic • Determine presence of spent solvents
Batteries	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • pH (for liquids) • Stability, DOT hazard class[d] • Hazardous waste metals[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Elemental Lead	Acceptable Knowledge[ae] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Hazardous wasteRCRA-regulated metals[be]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine toxicity characteristic

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale ~~for Parameter Selection~~ for Types of Wastes Generated~~to be Stored~~ ~~and/or Treated~~ at Sandia National Laboratories/New Mexico ~~Waste Management Units~~

Waste Type Description	Characterization Method	Parameter[b~~a~~]	Rationale
Unknown Liquids and Solids	• Physical Examination • Acceptable Knowledge[a~~e~~] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point (for liquids~~ waste~~), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids~~ waste~~) • Hazardous waste~~RCRA-regulated~~ metals[b~~e~~] • Hazardous waste~~RCRA-regulated~~ VOCs[b~~e~~] • Hazardous waste~~RCRA-regulated~~ SVOCs[b~~e~~]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, ~~and~~ reactivity, and corrosivity characteristics ~~Determine corrosivity characteristic~~ ~~Determine presence of spent solvents~~ • Determine waste compatibility information • Determine toxicity characteristic
Contaminated Soil	Acceptable Knowledge[a~~e~~] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste~~RCRA-regulated~~ metals[b~~e~~] • Hazardous waste~~RCRA-regulated~~ VOCs[b~~e~~] • Hazardous waste~~RCRA-regulated~~ SVOCs[b~~e~~]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, and reactivity~~, and corrosivity~~ characteristics • Determine waste compatibility information • Determine toxicity characteristic~~Determine presence of spent solvents~~
Debris	Acceptable Knowledge[a~~e~~] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste~~RCRA-regulated~~ metals[b~~e~~] • Hazardous waste~~RCRA-regulated~~ VOCs[b~~e~~] • Hazardous waste~~RCRA-regulated~~ SVOCs[b~~e~~]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, and reactivity~~, and corrosivity~~ characteristics • Determine waste compatibility information • Determine toxicity characteristic~~Determine presence of spent solvents~~

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale ~~for Parameter Selection~~ for Types of Wastes Generated~~to be Stored~~ ~~and/or Treated~~ at Sandia National Laboratories/New Mexico ~~Waste Management Units~~

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Decontamination Purge, and Treatment Waters	~~-~~Acceptable Knowledge[a~~c~~] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • pH • Stability, DOT hazard class[d] • Hazardous waste~~RCRA-regulated~~ metals[b~~e~~] • Hazardous waste~~RCRA-regulated~~ VOCs[b~~e~~] • Hazardous waste~~RCRA-regulated~~ SVOCs[b~~e~~]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine ignitability, reactivity, and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic~~Determine presence of spent solvents~~
Treated Waste and Treatment Residuals ~~(e.g., ash generated from the treatment of explosive or explosive contaminated waste)~~	• Acceptable Knowledge[a~~c~~] • Sampling and analysis	~~- pH~~ ~~- RCRA-regulated metals[b]~~ ~~- RCRA-regulated VOCs[b]~~ ~~- RCRA-regulated SVOCs[b]~~ SEE TABLE B-3	~~- Determine ignitability and reactivity characteristics~~ ~~- Determine corrosivity characteristic~~ ~~- Determine toxicity characteristics~~ ~~- Determine presence of spent solvents~~ ~~- Determine waste compatibility information~~ SEE TABLE B-3
Containment System Liquids	~~-~~Acceptable Knowledge[a~~c~~] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • pH • Hazardous waste~~RCRA-regulated~~ metals[b~~e~~] • Hazardous waste~~RCRA-regulated~~ VOCs[b~~e~~] • Hazardous waste~~RCRA-regulated~~ SVOCs[b~~e~~]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine ignitability and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic~~Determine presence of spent solvents~~

[~~c~~a] Acceptable knowledge is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Acceptable knowledge also includes published information regarding chemical properties.

[~~a~~b] Parameter selection is based on acceptable knowledge for each waste type. The first three items (shown in italics) are mandatory and constitute the minimum acceptable knowledge. The remaining parameters are optional and ~~Additional parameters~~ will be selected for each waste type as necessary, if the results of the first three parameters indicate additional information is needed. .

Table B-2 (Concluded)
Parameters, Characterization Methods, and Rationale for Parameter Selection for Types of Wastes Generatedto be Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

[c] The hazardous waste characteristic of reactivity as defined in 20 NMAC 4.1.200/40 CFR 261.23 is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[d] The hazardous waste characteristic of ignitability as defined in 20 NMAC 4.1.200/40 CFR 261.21 for solids is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[be] Use of the terms "hazardous wasteRCRA-regulated metals," hazardous wasteRCRA-regulated VOCs," and "hazardous wasteRCRA-regulated SVOCs" refer to hazardous RCRA-regulated waste as defined in 20 NMAC 4.1.2100/40 CFR 261.24 (6-14-0010-1-03) and to RCRA-regulated waste as defined in the General Part B.

[f] "Listing criteria" refers to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart D and the exclusion in 20 NMAC 4.1.200/40 CFR 261.3(g).

CFR Code of Federal Regulations
DOT U.S. Department of Transportation
NMAC New Mexico Administrative Code
SVOC semivolatile organic compound
VOC volatile organic compound

~~*Develop the Decision Rule*. If, based on the review of initial-generator-supplied documentation, Unit personnel determine that acceptable knowledge is adequate for waste characterization, Unit personnel will schedule a waste pickup from the initial generator. Unit personnel use the criteria listed in Section B.3.1.1 to determine the adequacy of acceptable knowledge information for waste characterization.~~

~~Alternatively, if there is not sufficient information for adequate characterization of the waste based on a review of the documentation, Unit personnel will work with the initial generator to obtain the additional documentation or identify the additional characterization information that is necessary to adequately characterize the waste.~~

After considering the accumulated information about the waste, its characteristics, the generating activity, and parameters of interest, and their respective regulatory levels, Unit personnel evaluate the waste with respect to the following general questions and determinations:

- If it meets a listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D[10-1-03], then it is a RCRA-regulated waste.
- If it meets a listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D and exhibits one or more of the characteristics in 20 NMAC 4.1.200/40 CFR 261 Subpart C (as indicated by knowledge, analytical data, or definitions), then it is a RCRA-regulated waste.
- If it does not meet any listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D but exhibits one or more of the characteristics in 20 NMAC 4.1.200/40 CFR 261 Subpart C (as indicated by knowledge, analytical data, or definitions), then it is a RCRA-regulated waste.
- If it is the same as a previously-generated waste that was a hazardous waste and there have been no substantive changes in the process, then it is a RCRA-regulated waste.
- If it is the same as a previously-generated waste that was not a hazardous waste and there have been no substantive changes in the process, then it is not a RCRA-regulated waste.
- If it similar to other previously- or concurrently-generated wastes that are hazardous wastes, and complete information is not yet available, then Unit personnel may* make a conservative determination that it is a RCRA-regulated waste. For example, if available information indicates toxicity characteristic metals are present but the concentrations are unknown, Unit personnel may* declare the waste exhibits the hazardous waste toxicity characteristic without analytical results.

Once the applicable EPA Hazardous Waste Numbers and physical form have been determined by Unit personnel, the waste is approved for transport to the SNL/NM Unit. Before transporting the waste to the appropriate SNL/NM Unit, Unit personnel visually check to verify that the waste matches the information on the DR form. If Unit personnel detect discrepancies between the shipping documentation and the waste at pickup, Unit personnel can choose to amend the documentation or have the initial generator correct and resubmit the ~~characterization~~ documentation to Unit personnel for approval. If the waste matches the information on the DR form, the waste is transported to the appropriate Unit. Upon receipt of the waste at a Unit, the characterization documentation becomes part of the Unit operating record. Data from additional characterization activities at the Unit (if such activities are performed) also become part of the Unit operating record. These records will be made available at reasonable times to the NMED, upon request.

Unit personnel serve as initial generators in some cases (e.g., legacy items needing further characterization and/or repackaging, and wastes generated through Unit operations). In these cases, Unit personnel assemble the available information, prepare a disposal request, and follow the process described above, except that the waste is already present at the Unit.

~~*Analytical Data Assessment*. Chemical analysis data (if any are generated) used to document waste characterization are assessed using SNL/NM data verification and validation procedures or equivalent methods.~~

~~Quality assurance/quality control (QA/QC) for sampling and analysis will be implemented to ensure that measurement data collected meets the information objectives for waste characterization. QA/QC will be implemented by adhering to the sampling protocol specified in Table B-4 and analytical procedures specified in Table B-3; documenting sampling activities and sample custody; using controlled and standard equipment and materials; and collecting, analyzing, and evaluating field and laboratory QA/QC samples.~~

B.2.2 Characterization of Unknown Wastes

Occasionally, wastes of an unknown nature require storage or treatment. For example, unknown wastes may* be generated as a result of a container label becoming detached or illegible. Most unknowns are contained in small containers (less than 1 gallon or 1 pound) and are related to R&D projects. These wastes are handled on a case-by-case basis. The individual waste will be tentatively characterized by knowledge of the operations and activities that were performed in the specific area in which the waste was generated. An on-site visual investigation of an unknown waste is another~~one~~ method utilized to characterize the waste. The visual investigation includes the assessment of the unknown for various properties, such as:

- Physical state,
- Color,
- Age,
- Storage and container conditions,
- Changes in substance,
- Phase separations,
- Quantity of waste,
- Any labeling, and
- Type of operations in the nearby area.

The material and its proper handling are sometimes positively identified through this investigation. If a positive identification is made, a disposal request is prepared~~DR form is submitted~~ and the waste is characterized as described above~~processed according to Unit waste acceptance procedures~~. If the unknown cannot be identified after this investigation, a HazCat™ or comparable test is performed to determine the hazard class. Once the hazard class is determined and the material is safe to transport to the appropriate SNL/NM Unit, the information is recorded on the disposal request~~a DR form, submitted to Unit personnel, and~~, which is processed according to the procedures described above. Additional RCRA waste characterization will typically occur after the waste has ~~decision has~~ been ~~made to~~ accepted ~~the waste~~ at a SNL/NM Unit.

B.2.3 Characterization of Mixed and Blended Wastes

~~Unit personnel combine RCRA-regulated liquid wastes and non-RCRA-regulated wastes together in a single container on a limited basis.~~ Initial generators and Unit personnel mix and blend wastes on a limited basis. RCRA-regulated liquid wastes and non-RCRA-regulated wastes may* be mixed/blended together in a single container. These mixing/blending activities are generally limited to process wastes, such as photographic fixers (RCRA-regulated) and photographic developers (non-RCRA-regulated). The resulting mixture is characteristic for silver (D011) and may* be corrosive (D002). Unit personnel may* also combine compatible liquids drained from aerosol cans (commercial chemical products or characteristic liquids) into a single container. The resulting mixture is typically ignitable. ~~In each case, the combined liquids are characterized as needed for on-site management by acceptable knowledge using information about the component liquids supplemented as needed by data from sampling and analysis.~~

Initial generators provide the following additional information for containers with mixed/blended wastes:

- Approximate amounts of each waste in the mixture
- List of known or potential hazardous constituents in each waste in the mixture
- Whether the wastes in the mixture include listed hazardous wastes such as spent solvents (based on available information)

Unit personnel consider the additional information when they characterize the waste using the general process described in Section B.2.1.2, and assign the applicable EPA Hazardous Waste Numbers. Unit personnel consider the known or suspected concentrations of hazardous waste constituents and the characteristics of the wastes as they were added to the container, before they were mixed and blended with other wastes. The EPA Hazardous Waste Numbers for each of the component wastes are incorporated into the numbers for the mixture.

B.~~3.~~2.4 Characterization of~~or~~ Wastes to be Treated at SNL/NM

Wastes to be treated at SNL/NM are~~will be~~ characterized according to the process described above. In addition to the objectives listed in Section B.2.1.1, wastes to be treated are characterized to determine one or more of the following, as needed, for each waste:

- Applicable treatment standards, including standards for both characteristic and listed hazardous wastes,
- Appropriate treatment methods to meet the standards,
- Presence of underlying hazardous constituents (UHCs) if applicable,
- Compliance with applicable treatment standards,

- Ssuitability for treatment by one or more methods available on site to meet treatment standards, and/or

- Suitability for treatment by one or more methods available on site to make the waste safer and more amenable to further management on site or off site.

and subsequent compliance with treatment standards for land disposal.
Characterization will be based on acceptable knowledge or on sampling and analysis, as discussed below.

These characterization criteria are summarized in Table B-3.

B.3.2.4.1 Characterization for Waste to be Treated at the TTF

Explosive waste to be treated at the TTF is characterized through the use of process knowledge rather than sampling and analysis for the following reasons:

- Information from sampling analysis would not improve knowledge of the waste because the explosive (e.g., SASN) and ignitable (e.g., acetone) components of the waste are known as a result of complete knowledge of process and a well-defined and documented procedure for formulating SASN. Variability occurs only in the relative amounts of non-explosive liquid and solid items.

- There is currently no other available treatment option for this explosive waste stream. Sampling and analysis activities could delay or prevent timely disposition of this waste, affecting the safety of Unit personnel, and causing a threat to human health and the environment

Explosive waste treated in the TTF is produced according to a documented formulation process. Therefore, the composition of the waste is well known. Variability occurs only in the relative amounts of non-explosive liquid and solid items (i.e., acetone, paper wipes, cotton rags and swabs). Sampling and subsequent laboratory analyses would present unnecessary hazards to personnel; therefore, process knowledge and written signed documentation provided by the initial generator are the methods used to determine the characteristics of the explosive waste before treatment at the TTF. Personnel document the waste constituents in the operating records for formulation and testing, and sign the documentation.

Prior to formulating the explosive slurry, Unit personnel screen the formulation instructions to identify changes. If the formulation has changed, personnel evaluate the constituents to check that the wastes are acceptable for treatment in the TTF. Constituents include :

- Tthe maximum net weight and estimated actual weight of explosives in the waste, and

- Tthe non-explosive constituents in the waste. Changes in the formulation are included in the documentation for formulation and testing. ,

Table B-3
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Explosive waste to be treated by open burning/open detonation	Knowledge of Process[a]	• *All characterization information previously obtained* • *Knowledge of treatment process*	• Verify that waste has same characteristics and constituents as previous wastes treated at TTF • Determine treatment standards[g] • Identify UHCs reasonably expected to be present in characteristic waste[f]
Residues from treatment of explosive wastes through open burning/open detonation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] Hazardous waste metals[e] UHCs[f]	• Determine whether treated waste meets listing criteria[h] • Determine waste form • Determine presence of free liquids • Determine waste compatibility information • Determine toxicity characteristics • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through chemical deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • Cyanides and sulfides[d] • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through chemical deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • pH (for liquids) • Stability, DOT hazard class[d] • Cyanides and sulfides • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]

Table B-3 (Continued)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Waste to be treated through thermal deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through thermal deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • DOT hazard class[c] • Stability, DOT hazard class[d] • UHCs[f]	• Determine waste form • Determine ignitability and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through amalgamation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through amalgamation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • UHCs[f]	• Determine waste form • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through stabilization	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]

Table B-3 (Continued)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Wastes that have been treated through stabilization	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through macro-encapsulation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process*	• Verify that waste is suitable for treatment by planned process • Determine treatment standards[i]
Waste that have been treated through macro-encapsulation	Knowledge of Process[a]	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process*	• Determine waste form • Determine whether waste meets treatment standards[i]
Waste to be treated through physical treatment	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through physical treatment	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids) • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e] • Hazardous waste metals[e] • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form, including size • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic • Determine whether waste meets treatment standards, including standards for UHCs[f]

Table B-3 (Concluded)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

[a] Acceptable knowledge is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Acceptable knowledge also includes published information regarding chemical properties.

[b] Parameters listed are in addition to those shown in Table B-2. Parameters shown in italics are mandatory; the others are selected based on obtaining additional information necessary for treatment or for characterizing the treated waste.

[c] The hazardous waste characteristic of reactivity as defined in 20 NMAC 4.1.200/40 CFR 261.23 [10-1-03] is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis. The presence of sulfides and cyanides may* cause waste to be reactive.

[d] The hazardous waste characteristic of ignitability as defined in 20 NMAC 4.1.200/40 CFR 261.21 for solids is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[e] Use of the terms "hazardous waste metals," hazardous waste VOCs," and "hazardous waste SVOCs" refer to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261.24 [10-1-03] and to RCRA-regulated waste as defined in the General Part B.

[f] Underlying hazardous constituents that are reasonably expected to be present in the untreated waste are part of the treatment standard for wastes exhibiting the hazardous waste characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart C (referred to as "characteristic wastes").

[g] Treatment standards are those listed in 20 NMAC 4.1.800/40 CFR 268 Subpart D. Compliance with the treatment standards is determined for treated wastes that will be sent to an off-site TSDF without further treatment.

[h] "Listing criteria" refers to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart D.

[i] Macroencapsulation is defined in 20 NMAC 4.1.800/40 CFR 268.42 and 268.45

CFR Code of Federal Regulations
DOT U.s. Department of Transportation
NMAC New Mexico Administrative Code
SVOC semivolatile organic compound
TSDF Treatment, storage, and disposal facility managing RCRA-regulated wastes
UHC Underlying hazardous constituents
VOC volatile organic compound

B.2.43.2.2 Characterization for Waste to be Treated at the Existing RMWMF/Future CWMF and AHCF

Wastes to be treated in containers at the existing RMWMF/future CWMF and AHCF will be characterized based on acceptable knowledge, supplemented by sampling and analysis if necessary (as described in Section B.3) before treatment takes place to meet the objectives noted above. For wastes that will be treated to meet the treatment standards, the characterization includes the presence of UHCs that are reasonably expected to be present if UHCs are part of the treatment standards.This is necessary to determine the most appropriate treatment method and to determine the proper treatment parameters.

Characterization is also required before treatment in order to subsequently determine whether a waste has been properly treated and meets LDR treatment standards, including standards for UHCs that are reasonably expected to be present. This is especially important when determining the proper analyses needed and analytes to be assessed to ascertain whether concentration-based treatment standards have been met.

B.2.53.3 Characterization ofor Treated Wastes

RCRA-regulated wastes may* be generated during treatment operations at SNL/NM Units. Alternatively, treatment operations may* generate wastes that are no longer RCRA-regulated. The following sections describe the treated wastes and other wastes that may* be generated during or as a result of treatment operations at the TTF, RMWMF, and AHCF, and the associated waste characterization procedures.Treated wastes are characterized through knowledge of process, supplemented by analytical data as needed, using the general process described in Section B.2.1.2. In addition to the objectives listed in Section B.2.1.1, treated wastes and residues are characterized to determine one or more of the following, as applicable, for each waste:

- Whether the characteristic of interest has been treated effectively
- Compliance with applicable treatment standards if compliance is a treatment goal,
- Continued presence of UHCs that are reasonably expected to be present in the waste as generated if compliance with applicable treatment standards is a treatment goal,
- Presence of hazardous waste constituents and characteristics that could have been introduced during treatment,
- Whether the treated waste or residue requires further management as a RCRA-regulated waste, and/or
- Suitability for further treatment by one or more methods available on site to make the waste safer and more amenable to further management on site or off site.

These characterization criteria are summarized in Table B-3.

Characterization for treated wastes and residues derived from treatment processes will include consideration of both listed and characteristic wastes that were present in the untreated wastes. In

particular, Sandia/DOE will follow the requirements of 20 NMAC 4.1.200/40 CFR 261.3(g) [10-1-03] in characterizing wastes that are listed solely because they exhibit one or more of the characteristics of ignitability, reactivity, or corrosivity.

Wastes that are treated using technologies specified in 20 NMAC 4.1.800/40 CFR 268.40-45 [10-1-03] will not necessarily be subjected to sampling and analysis. Such treatment technologies include but are not limited to physical treatment, deactivation, and macroencapsulation. In these cases, treatment effectiveness will be determined by visual examination of the treated waste and/or knowledge of the treatment process as discussed in Section 8.0 of Modules II, III, and V. Other treated wastes will be subjected to sampling and analysis to characterize the waste and determine the effectiveness of the treatment as appropriate. ~~If additional RCRA-regulated constituents have been introduced during the treatment process, they will be included in the analysis of the treated waste. The analysis will also include UHCs that are reasonably expected to be present in the treated waste.~~

B.2.5~~3.3~~.1 Treated Wastes at the TTF

Waste residues from the thermal treatment of explosive (reactive) waste at the TTF include decomposition by-products. The principal by-products are ash (carbon) produced from burned solid items (e.g., paper, filters) and gases (i.e., nitrogen, water vapor, carbon dioxide, carbon monoxide, diatomic oxygen, and traces of nitrous oxides) produced by the decomposition of SASN, PETN, acetone, and acetonitrile. Elemental silver is also present in the ash when SASN is treated at the TTF.

The ~~success of deactivation/thermal treatment to eliminate the~~ reactive and ignitable characteristics of the residue ~~wastes treated~~ at the TTF is assessed by visually screening the residue in the burn pan for the presence of unreacted SASN (and PETN, as applicable).

Ash residue generated as a result of the treatment of explosive waste at the TTF is ~~will be~~ declared to be hazardous waste (D011) based on knowledge of the constituents and treatment process. Alternatively, Sandia/DOE may* use sampling and analysis to determine the silver content of the residue~~handled in compliance with all requirements for the EPA Hazardous Waste codes that pertain to the residue (e.g., D011 and F003)~~. The contents of the burn pan are containerized and transferred to one of the other SNL/NM Units for storage and transportation to an off-site TSDF. Sandia/DOE will characterize the residue as needed for further treatment or direct disposal ~~to meet the requirements of the~~ at a permitted off-site TSDF.

Because the TTF is located outside, the steel-lined concrete pad periodically collects water from precipitation; the water drains into the catch tank. Unless waste spills, untreated waste “kicks out” (i.e., is ejected from the burn pan) during treatment, or otherwise contaminates the steel-lined concrete pad, the water collected in the catch tank consists of precipitation. If water collected in the catch tank is known to be contaminated with hazardous~~RCRA-regulated~~ waste constituents treated at the TTF, arrangements will be made for disposal into the City of Albuquerque wastewater system with a one-time notice placed in the facility file in accordance with 20 NMAC 4.1.800/40 CFR 268.7(a)(6) [~~6-14-00~~10-1-03]. If the wastewater cannot be discharged into the City of Albuquerque wastewater system, it will be handled through waste management procedures at one of the other SNL/NM Units.

B.2.53.3.2 Treated Wastes at the Existing RMWMF/Future CWMF and AHCF

Effectiveness of treatment is determined one or more ways that are specific to the type of treatment and the waste undergoing treatment. Evaluations are described in detail in Section 8.3 of Modules III and V. Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes in containers at the existing RMWMF/future CWMF and AHCF are characterized using one or more of include the following methods:

- Reactive metals and metal-containing particulates Wastes treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF include reactive metals and metal-containing particulates. These wastes are deactivated using water, a water/n alcohol solution, or other organic liquid, or portland cement. Alcohol and other organic liquids may* exhibit the characteristic of ignitability, and can typically be characterized using knowledge of the treatment process. Unit personnel use knowledge of process and the flash point test, as needed, to determine whether the treated waste exhibits the hazardous waste characteristics of reactivity or ignitability. The treated wastes are analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not undergo further treatment on site.

- Corrosive aqueous liquidsWastes treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF are characterized for corrosivity through a pH check. include corrosive aqueous liquids. The neutralized liquids are no longer corrosive. The treated wastes are analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not may* undergo further treatment on site.

- Reactive wastes treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF are characterized for the presence of sulfides and cyanides through a chemical check if their presence caused the waste to be reactive. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site.

- Reactive batteries and other small reactive/explosive items Wastes treated by thermal deactivation at the existing RMWMF/future CWMF include reactive batteries and other small reactive/explosive items that may* also exhibit the characteristic of toxicity. are characterized for reactivity through knowledge of the treatment process and operations. These wastes are deactivated by heating. Success of deactivation is evaluated using visual examination. The wastes may* also exhibit the hazardous waste characteristic of toxicity. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site. The deactivated items may* contain TC metals and UHCs that are included in analysis of the treated waste.

- Elemental mercury The waste treated by amalgamation at the existing RMWMF/future CWMF is liquid elemental mercury. This waste is immobilized analyzed for the presence of mercury and UHCs to determine whether into a solid, leach-resistant form by forming a metal alloy between the waste and a base metal, such as zinc or copper. Treatment is considered successive if the amalgam meets the treatment standards.

- Aqueous liquids Wastes treated by stabilization at the existing RMWMF/future CWMF and AHCF include aqueous liquids (including liquids that have previously been neutralized) . The treated wastes may*are checked for the presence of free liquids. also contain TC metals and UHCs that are included in analysis of the treated waste. The treated wastes are

analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not undergo further treatment on site.

- Oils and organic liquids exhibiting the hazardous waste characteristics of ignitability and toxicity that are Wastes treated by stabilization at the existing RMWMF/future CWMF and AHCF also include oils that may* exhibit the characteristics of toxicity and ignitability. are characterized for ignitability through process knowledge. The treated wastes may* also exhibit the hazardous waste characteristic of toxicity; if so, the treated wastes are characterized through sampling and analysis. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site. contain TC metals and UHCs that are included in analysis of the treated waste.

- Soils and particulates exhibiting one or more of the hazardous waste characteristics of ignitability, reactivity, and toxicity Wastes that are treated by stabilization at the existing RMWMF/future CWMF and AHCF also include soils and particulates that may* exhibit the characteristics of ignitability, reactivity, and toxicity, and may* contain UHCs. The treated wastes no longer exhibit the characteristics of ignitability and reactivity. after treatment. The treated wastes are characterized for toxicity (if applicable) through sampling and analysis. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site. They may* contain TC metals and UHCs that are included in analysis of the treated waste.

- Wastes exhibiting the characteristic of toxicity and/or containing or contaminated with spent solvents that are treated by macroencapsulation at the existing RMWMF/future CWMF and AHCF include RCRA-regulated debris exhibiting the characteristic of toxicity and containing or contaminated with spent solvents. The treated items are visually examined to determine whether treatment met the standardswas effective.

- Wastes treated by physical treatment include small components containing listed wastes and/or exhibiting the characteristics of ignitability, reactivity, corrosivity, and/or toxicity. After the items are Treatment is considered effective if these items are successfully detached and separated from larger items, both items are characterized as described in Section B.2.1.2 to determine whether they are RCRA-regulated wastes. Following treatment, the larger items are no longer RCRA-regulated.

- Wastes that are treated to reduce the size of individual pieces at the existing RMWMF/future CWMF and AHCF do not undergo further characterization because the treatment does not affect hazardous waste constituents or characteristics of the waste.

- Liquids and pressurized containers Wastes treated by physical treatment at the existing RMWMF/future CWMF also include liquids. The treatment consists of puncturing aerosol cans in a container equipped with a charcoal filter.are characterized separately following treatment. If the containers are empty, they are no longer RCRA-regulated waste. The collected liquids may* are characterized in the same manner as mixed and blended wastes (described in Section B.2.3). If the liquids will not undergo further treatment on site, they are characterized to determine compliance with treatment standards applicable to all components, including the presence of UHCs in characteristic wastes. include commercial chemical products and often exhibit the characteristic of ignitability. They are further characterized through knowledge from MSDSs and manufacturer-supplied information, supplemented by sampling and analysis, as needed.

Treatment residue derived from listed wastes will be handled as RCRA-regulated waste contaminated with the listed constituents of the original waste, in accordance with regulatory requirements. Treatment residue from the treatment of characteristic RCRA-regulated waste will be sent to an appropriate off-site waste management facility if it no longer exhibits RCRA-regulated characteristics and meets the appropriate treatment standards. Treatment residue that still exhibits one or more RCRA-regulated characteristics and/or is derived from a waste with listed constituents will be containerized and transported to one of the other SNL/NM Units for storage pending ultimate disposal in accordance with LDRs at an off-site RCRA-regulated waste management facility. UHCs that are reasonably expected to be present will be considered as described above.

B.2.63.1.3 Verification and Reevaluation Frequencies [20 NMAC 4.1.500/40 CFR 264.13(a)(3)(i) and 264.13(b)(4); 20 NMAC 4.1.800/40 CFR 268.7(b)]

Sandia/DOE will review air emissions data and status at least once every 12 months for RCRA-regulated wastes subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03].

As described in previous sections, initial generators and Unit personnel obtain and evaluate information to characterize individual RCRA-regulated wastes managed at the SNL/NM Units. The evaluation needed for a single waste item depends on the item.

The duration of the characterization and its applicability to wastes generated in the future depends on the type of waste. For example, information about the contents of each container of used laboratory chemicals is applicable only to that container; however, information about the chemical composition and hazardous waste characteristics of batteries is applicable to all batteries of the same type. A waste item that is part of a routinely-generated waste stream for which the generating process has not changed typically requires only a relatively brief review of information (either AK or analytical data). In contrast, a one-time waste item that is unknown will require more extensive evaluation before it is adequately characterized. This may* include review of AK information and/or data obtained by sampling and analysis.

The Sandia/DOE waste verification process is designed to provide additional assurance that wastes are adequately characterized for management at the Units. The process applies to the verification of wastes and waste streams received at a Unit and designated for treatment and/or storage and/or treatment prior to off-site disposal. Treated wastes are characterized as described in Section B.2.5, and are not subject to the verification and reevaluation procedures described in this section. Unit personnel involved in verification activities are trained and qualified for the activities they perform.

B.2.63.1.3.1 Verification of Wastes

Wastes are selected for further evaluation as part of the verification program using one or more of the following criteria:

- Random selection;
- Adequacy of information previously provided by the initial waste generators;
- Recommendations from Unit personnel;
- Incomplete or inconsistent documentation; and
- Other waste-specific criteria.

During each calendar year, Sandia/DOE will verify the characterization using personnel independent of the initial waste characterization for one percent of the SNL/NM RCRA-regulated waste items that meet all of the following conditions:

- The waste is received at a SNL/NM Unit for storage or treatment,
- The waste is not part of a waste stream,
- The waste was initially characterized through acceptable knowledge,
- The waste is not a commercial chemical product, off-specification species, container residue, or spill residue identified in 20 NMAC 4.1.200/40 CFR 261.33 [10-1-03],
- The waste is not material in a factory-sealed container or original container, and
- The information that would be obtained during the verification is needed for further management of the waste at the SNL/NM Unit (i.e., the verification will be limited to necessary information).

Once the waste is selected for verification, Unit personnel will be notified of its pending arrival at a Unit. Some wastes may* only require a visual verification of the container's contents. If the visual verification of a container's contents is found to be inconsistent with the initial generator's waste characterization documentation, further verification is required, and Unit personnel will decide whether to accept the waste for management pending resolution of the discrepancy. Depending on the severity of the discrepancy, the initial waste generator may* be subject to increased review.

For wastes that were initially characterized using acceptable knowledge, the independentUnit personnel will review applicable waste characterization documentation to verify that it adequately describes the wastes. Verification analyses, if needed, will be conducted at SNL/NM or an approved laboratory, in conformance with appropriate methods (discussed in Section see Table B-43).

B.2.63.1.3.2 Reevaluation of Waste Streams

Characterization information for routinely generated waste streams is evaluated periodically to verify that they have not changed. Any information that indicates a change in the process that generates the waste and may* affect the waste will cause the waste to be recharacterized no later than the next time the waste is generated.

In addition to the verification activities described above for individual wastes, Sandia/DOE will reevaluate initial characterization information for routinely generated RCRA-regulated waste streams as needed for any of the following reasons (Routinely generated waste streams are those that are generated at least once per month in quantities of 30 gallons or greater):

- To verify the accuracy of the initial waste characterization when Unit personnel suspect the characterization is not accurate;

- To verify that applicable treatment standards have been met for those wastes treated at one of the SNL/NM Units;
- When there is a change in a waste-generating process;
- When the initial generator requests a review;
- When analytical results indicate a change in a waste stream; or
- When regulatory requirements change and additional information is required for further management of the waste at SNL/NM Units.

In addition to the reevaluations performed for one or more of the reasons listed above, Sandia/DOE will reevaluate additional streams as needed for a total of ten percent of routinely-generated all SNL/NM RCRA-regulated waste streams that meet all of the following conditions:

- The waste is received at a SNL/NM Unit for storage or treatment during the past 12 months;
- The waste is part of a waste stream as defined in Section B.1.2; and
- The waste stream has not been evaluated during the past 12 months for any reason, including changes in waste composition and changes in the process(es) generating the waste.

In each case, Sandia/DOE will evaluate a single randomly-selected item from the waste stream, and the reevaluation will be limited to information necessary for management of the waste at the SNL/NM Unit. The evaluation will be conducted in the same manner as evaluation of individual wastes. For wastes that were characterized using acceptable knowledge, Unit personnel will review applicable waste characterization documentation to verify that it adequately describes the wastes. Verification analyses, if needed, will be conducted at SNL/NM or an approved laboratory, in conformance with appropriate methods (discussed in Sectionsee Table B-43).

B.3.1.1 USE OF AVAILABLE KNOWLEDGE

Sandia/DOE's approach to waste characterization is based on use of existing information (i.e., available knowledge) regarding the chemical and physical nature of the waste or waste stream and the activities that generated it, supplemented by data from sampling and analysis as needed to provide sufficient information to answer the questions discussed in Section B.2.1.1. This approach is consistent with EPA and EPA/NRC guidance (EPA, 1994) and (EPA/NRC, 1997).

The physical and chemical nature of some waste forms at SNL/NM makes the collection of representative samples for characterization difficult. This difficulty arises from several factors, some of which include: waste types containing disparate elements; disparate elements that may* need to be segregated into similar forms; large objects that cannot fit within standard size sample containers; and laboratories that do not have the capability to sample large objects (EPA, 1992). Other difficulties arise from health and safety risks to personnel due to potential exposure to explosive material, radiation, or other hazards. Acceptable knowledge is a method used to characterize the waste forms utilizing process knowledge and additional waste analysis data, as

necessary. Acceptable knowledge will be used to meet all or part of the waste analysis requirements and to direct subsequent sampling and analysis if they are needed.

B.3.1 Acceptable Knowledge [20 NMAC 4.1.500/40 CFR 264.13(a)(2) and 264.13(b)(5); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

According to EPA guidance, acceptable knowledge is broadly defined to include process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Process knowledge is described in 20 NMAC 4.1.500/40 CFR 264.13(a)(2) [6-14-0010-1-03], as data developed under 20 NMAC 4.1.200/40 CFR 261 [6-14-0010-1-03] and existing published or documented data on a specific RCRA-regulated waste or a waste generated from similar processes. Supplemental waste analysis data include concentration(s) of hazardous wasteRCRA-regulated constituents and/or results of tests for hazardous wasteRCRA-regulated characteristics to determine whether wastes are RCRA regulated. Records for some unknown liquids and solids may* include waste analysis and/or physical characterization performed prior to the effective date of RCRA regulations. In order to be acceptable, such analytical results must be accurate and applicable to the specified waste and are typically supplemented with other existing information (e.g., published data).

Examples presented in the EPA guidance (EPA, 1994) as to when the application of acceptable knowledge is appropriate include:

- Wastes containing hazardous wasteRCRA-regulated constituents from specific processes that are well documented;
- Wastes consisting of discarded unused commercial chemical products, reagents, or chemicals containing known physical and chemical constituents (e.g., spent solvents);
- Waste containing levels of radioactivity such that health and safety risks to personnel do not justify sampling and analysis due to quantified and documented radiological concerns; and
- Wastes containing heterogeneous materials, where the physical nature of the waste does not lend itself to taking a representative sample (e.g., laboratory trash and construction debris with surface contamination).

Waste characterization documentation based solely on acceptable knowledge is approved by Unit personnel if one or more of the above criteria have been met. The criteria are provided or available for review by Unit personnel to ensure that a valid and accurate RCRA-regulated waste characterization can be made. Acceptable knowledge documentation will be maintained in at the Unit (unless otherwise designated in the Unit operating record) for at least three years.

B.3.21.1.1 Process Knowledge

Process knowledge, a subset of acceptable knowledge, consists of one or more of the following:

- Detailed information on a waste or waste stream obtained from existing published or documented waste analysis data;

- Studies conducted on RCRA-regulated wastes generated by processes similar to that which generated the waste; and

- Knowledge of the materials and operations that generated the waste and that demonstrates the potential for hazardous ~~RCRA-regulated~~ constituents in the waste. For example, metals present in debris waste are often associated with specific materials (e.g., lead in leaded rubber or lead shielding).

Process knowledge documentation for each RCRA-regulated waste or waste stream is kept in the operating record of the Unit with other waste characterization information, or in a ~~file or a waste/waste stream~~ reference file that includes the documents or identifies them and their locations. The reference file is also part of the operating record. The documentation is explicitly relevant and traceable to a given waste or waste stream~~, and is not merely a list of information sources for a particular operation and waste~~. There are many sources of applicable documentation at SNL/NM that are used to substantiate process knowledge for a specific waste or waste stream. Examples of documentation that are used for waste characterization include the following:

- MSDSs, product labels, and other product package information;

- Process design documents;

- Preliminary and final reports and analyses of the operations generating the waste;

- Information from operating procedures, which can include a list of the raw materials or reagents, a description of the process/experiment that uses the materials, and a description of the wastes generated and how the wastes are handled;

- Waste packaging logs;

- Test plans or research project reports that describe the reagents and other raw materials used in an experiment;

- Laboratory notebooks that detail the research processes and raw materials used in an experiment;

- Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements);

- Information from personnel (e.g., documented interviews);

- Standard industry practice documents (e.g., vendor information);

- Industry reports on a similar process when there is a clear connection between the SNL/NM process/experiment and the industry's similar process/experiment;

- Previous analytical data relevant to the waste or waste stream, including results from fingerprint analyses, spot checks, or routine waste verification sampling;

- Analytical data from studies of common industry processes that are similar to SNL/NM processes. These data can be used to identify the constituents in a specific "similar" process waste and to determine the regulatory status of the waste;

- Sampling and analysis data from comparable wastes or waste streams;

- Analysis of a surrogate waste or waste stream;

- Documented visual inspections to confirm or identify the physical characteristics and packaging of a waste; and

- ER site and waste characterization data.

B.3.1.1.2 Additional Characterization Data

Additional waste characterization data used to support acceptable knowledge includes information provided by the initial generator of the waste or waste stream on the source, the concentrations of RCRA-regulated constituents in the waste, and/or the results of tests for RCRA-regulated characteristics. This information can be the result of a recent analysis of the waste, a well-documented historical analysis of the waste, and/or the analysis of a surrogate waste or waste stream.

B.42 WASTE SAMPLING AND ANALYSIS PARAMETERS [20 NMAC 4.1.500/ 40 CFR 264.13(a)(1)]

Chemical and physical characterization and/or acceptable knowledge isare applicable to all RCRA-regulated waste for management purposes, as required by 20 NMAC 4.1.500/40 CFR 264.13 [6-14-0010-1-03]. Initial waste generators and Unit personnel select analytical parameters to ensure that the characterization documentation will contain the information necessary to properly treat and/or store waste in accordance with RCRA general facility standards and LDR requirements.

Sandia/DOE will also obtain characterization information to meet the requirements of the off-site TSDFs that accept RCRA-regulated wastes that have been generated treated at SNL/NM. Units. Management (including disposal) of Sandia/DOE wastes at off-site TSDFs is outside the scope of the permitted activities conducted at SNL/NM, and is not addressed further in this WAP.

B.3.1.2 Sampling and Analysis [20 NMAC 4.1.500/40 CFR 264.13(a)(3), 264.13(b)(2), (3), and (4); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

This section discusses proposed Ssampling and analytical procedures and sampling frequencies that are applicable to RCRA-regulated waste are discussed in this section. Sampling and analysis is generally performed to provide supplemental information when a waste lacks sufficient process information to adequately characterize the waste based on acceptable knowledge. The approach described for characterizing these wastes types is based on the physical, chemical, and hazardous properties of the waste; and on the amount and type of knowledge/information available. Personnel involved in sampling and analysis comply with relevant and applicable protocol that is consistent with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (EPA, 1986

and all approved updates), hereinafter referred to as SW-846, or other equivalent methods. Detailed sampling recommendations and guidance are provided in Chapter 9 of SW-846. Table B-4 lists the applicable requirements specified in SW-846 regarding sample containers, preservation techniques, and holding times associated with sample collection. Table B-3 identifies the applicable analytical testing requirements including specific test methods for parameters of interest used to characterize waste for management at SNL/NM Units.

Quality assurance/quality control (QA/QC) for sampling and analysis will be implemented to ensure that measurement data collected meets the information objectives for waste characterization. QA/QC will be implemented by adhering to the sampling protocol and analytical procedures specified in this section; documenting sampling activities and sample custody; using controlled and standard equipment and materials; and collecting, analyzing, and evaluating field and laboratory QA/QC samples.

B.42.1 Proposed Analytical Parameters and Methods [20 NMAC 4.1.500/40 CFR 264.13(b)(1); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

Analytical parameters and characterization methods that are used for RCRA-regulated waste stored and/or treated at SNL/NM Units are summarized in Tables B-2 and B-3. As noted in Sections B.2.1, and B.2.4, The following parameters/methods will be used to determine the RCRA regulatory status of these wastes is determined through consideration of the following:.

- Acceptable knowledge, supplemented by
- Sampling and analysis to determine the presence (and concentrations) of:
  - Hazardous wasteRCRA-regulated metals (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.210/40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Hazardous wasteRCRA-regulated volatile organic compounds (VOCs) (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.210/ 40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Hazardous wasteRCRA-regulated semivolatile organic compounds (SVOCs) (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.210/ 40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Other hazardous wasteRCRA-regulated characteristics (i.e., ignitability, reactivity, corrosivity)
  - UHC metals, volatile organic compounds, and semivolatile organic compounds (defined in 20 NMAC 4.1.800/40 CFR 268..48 [10-1-03]) that are reasonably expected to be present in wastes exhibiting hazardous waste characteristics.
- Fingerprint analysis, or
- HazCat™ or other field tests.

B.42.2. Criteria and Rationale for Parameter Selection [20 NMAC 4.1.500/ 40 CFR 264.13(b)(1)]

As described abovein Section B.2, waste analysis parameters are selected to characterize RCRA-regulated waste in conformance with 20 NMAC 4.1.500/40 CFR 264.13(b)(1) [6-14-0010-1-03], to obtain information necessary to properly store and/or treat waste at SNL/NM Units in accordance with 20 NMAC 4.1.500/40 CFR 264 and 20 NMAC 4.1.8500/40 CFR 268 [10-1-03]. The analytical parameters selected to supplement and confirm knowledge-based waste characterization for RCRA-regulated waste types and the rationale for the selected parameters are summarized identified in Tables B-2 and B-3. Table B-4 identifies the applicable analytical testing requirements and specific test methods for the parameters of interest, including UHCs discussed in Sections B.2.4 and B.2.5.

B.4.3.1.2.1 Waste Sampling

The objective of waste sampling is to obtain a sample or samples representative of the waste or waste stream. An understanding of the waste-generating and -handling processes is considered to ensure that samples are representative. Some wastes separate into distinct layers with time, and representative samples must include aliquots from each layer. In some cases, it may* be important to use a statistical or random sampling scheme that provides for the collection of representative samples.

A number of criteria are considered in determining how many samples are required, how sampling locations are selected, and how frequently sampling should be repeated. If the waste is a highly uniform waste stream from a single process location, one grab sample collected periodically is sufficient. However, if a single waste type is a mixture of materials generated in several locations under varying conditions through time, more samples will be required, and composite sampling may* be appropriate. At a minimum, the sampling is repeated if the waste-generating process changes in a material way, or if inspection of the waste reveals it has changed.

Appendix I of 20 NMAC 4.1.200/40 CFR 261 [10-1-03] lists specific guidance documents that detail sampling protocols for different waste types. Waste samples collected in accordance with these protocols are considered representative by EPA. The protocols include standards developed by the American Society for Testing and Materials (ASTM) and portions of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (EPA, 1986 and all approved updates), hereinafter referred to as SW-846. Personnel involved in sampling and analysis comply with relevant and applicable protocol that is consistent with SW-846 or other equivalent methods. Detailed sampling recommendations and guidance are provided in Chapter 9 of SW-846. These methods are designed to ensure that representative waste samples are consistently collected and transferred to the responsible laboratory in a manner that maintains sample integrity.

A representative sample of the waste is collected and handled by means that preserve its original physical form and composition and prevent contamination or changes in the concentration(s) of the constituent(s) to be analyzed.

Table B-43
Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste

Parameter	Method Numbers[b]	Rationale
VOC in waste matrix		
Spent halogenated solvents Spent nonhalogenated solvents	ASTM Method D4547-91[ac] or equivalent method EPA/540/4-91/001[bd] or equivalent methods[ee] EPA Methods SW-846 (8260B)[f] or equivalent methods[e] EPA Methods SW-846 (1311, 8260B, 8275A)[df] or equivalent methods[ee] Methods included in 20 NMAC 4.1.600/40 CFR 265.1084(a)(2), (a)(3), and (a)(4)	Determine total and/or TCLP and SVOC/VOC concentration in samples of solids or liquids
Underlying hazardous constituents[a] that are VOCs[a]	ASTM Method D4547-91[c] or equivalent method EPA/540/4-91/001[d] or equivalent methods[e] EPA Methods SW-846 (1311, 8260B, 8275A)[f] or equivalent methods[e]	Determine whether treated wastes meet treatment standards
SVOCs in waste	EPA Methods SW-846 (1311 and 8270C)[ef] or equivalent methods[ee]	Determine total and/or TCLP and SVOC concentration in samples of solids or liquids
Underlying hazardous constituents[a] that are SVOCs[a]	EPA Methods SW-846 (1311 and 8270C)[f] or equivalent methods[e]	Determine whether treated wastes meet treatment standards
Metals in waste	EPA Methods SW-846[f]:	
Arsenic	(1311, 6010B, 7060A, 7061A)[ee]	
Barium	(1311, 6010B, 7080A, 7081)[ee]	
Cadmium	(1311, 6010B, 7130, 7131A)[ee]	
Chromium	(1311, 6010B, 7190, 7191)[ee]	
Lead	(1311, 6010B, 7420, 7421)[ee]	
Mercury	(1311, 7470B, 7471A)[ee]	
Selenium	(1311, 6010B, 7740, 7741A, 7742)[ee]	
Silver	(1311, 6010B, 7760A, 7761)[ee]	
	or equivalent methods[ee]	Determine total and/or TCLP concentration in samples of solids or liquids
Underlying hazardous constituents[a] that are metals:	EPA Methods SW-846[f]:	
Same metals listed above (except selenium)	same methods for metals listed above	
Antimony	(1311, 6010B, 7040, 7041)[e]	
Beryllium	(1311, 6010B, 7090, 7091)[e]	
Cyanides (total)	(1311, 9010B, 9012A)[e]	
Cyanides (amendable)	(1311, 9010B, 9012A)[e]	
Nickel	(1311, 6010B, 7520, 7521)[e]	
Thallium	(1311, 6010B, 7840, 7841)[e]	
	or equivalent methods[e]	Determine whether treated wastes meet treatment standards
Reactive Sulfide	EPA Methods SW-846, Test Method to Determine Hydrogen Sulfide Released from Wastes[eg] or equivalent methods[ee] EPA Methods SW-846 (9030B, 9031, 9034)[ef] or equivalent methods[ee]	Determine concentration of reactive sulfides

Table B-43 (Concluded)
Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste

Parameter	Method Numbers[b]	Rationale
Paint Filter Liquids Test	EPA Methods SW-846 (9095)[f] or equivalent methods[e]	Determine presence of free liquids
Flash Point	EPA Methods SW-846 (1010, 1020, 1030)[ef] or equivalent methods[ee]	Determine ignitability
pH	EPA Methods SW-846 (9040B, 9041A, 9045C)[ef] or equivalent methods[ee]	Determine corrosivity
Explosives in waste	EPA Methods SW-846 (Appropriate analytical method from the Method 8300 series 8330)[fa]	Determine reactivity

[a] Analyses are limited to determining whether treated wastes meet the universal treatment standards for the underlying hazardous constituents that can reasonably be expected to be present at the point of generation of the hazardous waste, as provided in 20 NMAC 4.1.800/40 CFR 268.48 [10-1-03].
[b] Sandia/DOE use the most current methods for analysis. Method numbers are subject to change through future updates and may* vary from those shown in this table.
[ca] American Society for Testing and Materials, 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," ASTM D4547-91, *Annual Book of ASTM Standards*, Philadelphia, Pennsylvania, American Society for Testing and Materials. (ASTM, 1991)
[db] U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds," EPA 1/540/4-91/001, Office of Research and Development. (EPA, 1991)
[ec] Equivalent methods subject to EPA approval may* be substituted to accommodate waste-specific properties.
[fd] U.S. Environmental Protection Agency, 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[ge] SW-846, Section 7.3.4.2 contains specialized methods to determine if a sulfide-containing waste exhibits the reactivity characteristic.

The following sampling strategies are used for waste sampling at SNL/NM unless an alternative sampling strategy is more appropriate for a specific waste item based on specific historical, process, or waste information:

- Sampling activities are conducted in a manner that minimizes the generation of waste;
- If the sampling or analysis of the waste would pose a serious threat to human health, Sandia/DOE will forego sampling and analysis;
- For heterogeneous solid items, such as contaminated debris, samples will be obtained from areas that are most likely to be contaminated, based on visual inspection of the waste or knowledge of the activity that generated the waste;
- For solid items whose surface is suspected to be contaminated with RCRA-regulated waste, such as contaminated equipment, surface wipe samples will be taken;
- For solid items with compositions that may* exhibit hazardous wasteRCRA-regulated characteristics, such as equipment, a sample will be taken and analyzed from the waste or from a nonwaste item similar to the waste item;

- Samples will be collected from each phase of wastes that exist in multiple solid, liquid, and/or gas phases;
- For liquid waste items in multiple containers, one sample will be taken for each container or each 55 gallons of waste, whichever is larger;
- For solid items in multiple containers, one sample will be taken for each container or each 103 cubic yards of waste, whichever is larger; and
- Handling and collection techniques are consistent with SW-846 and conducted to preserve the nature of the waste sample.

Table B-5 lists the applicable requirements specified in SW-846 regarding sample containers, preservation techniques, and holding times associated with sample collection. The sampling protocol for solid RCRA-regulated waste at SNL/NM is based on sampling methods approved by EPA for solids and soils in SW-846, as well as methods approved by the ASTM. These methods are designed to ensure that representative waste samples are consistently collected and transferred to the responsible laboratory in a manner that maintains sample integrity.

B.4.43.1.2.2 Waste Analysis

Analytical methods for the determination of hazardous wasteRCRA-regulated metals, VOCs, SVOCs, and the hazardous wasteRCRA-regulated characteristics of ignitability, reactivity, and corrosivity are implemented to meet certain technical performance criteria and to be consistent with regulatory guidelines.

Solid items may* be heterogeneous or homogeneous. If necessary for waste characterization purposes, these solids will be analyzed for total concentrations of hazardous wasteRCRA-regulated metals, VOCs, and SVOCs (see Table B-43 for specific analytical methods). If necessary for waste characterization purposes, homogeneous wastes will be sampled and analyzed for the toxicity characteristic (TC) constituents listed in 20 NMAC 4.1.200/40 CFR 261.24 [6-14-0010-1-03]. If analysis for total concentration of TC constituents will be performed on samples, it will be done as a screening step, as described in Section 1.2 of Method 1311, Toxicity Characteristic Leaching Procedure (TCLP). If total concentrations are used in the waste characterization process, analytical data will be compared to the TC regulatory levels expressed as total values. These total values will be considered the regulatory threshold limit (RTL) values for the determination of whether a particular waste exhibits a TC. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a TC constituent that would give the regulatory weight/volume concentration in the TCLP extract. If the total concentrations are less than the RTL value, the waste cannot exhibit the toxicity characteristic and the TCLP does not need to be completed for the screened TC constituents.

Liquid wastes typically consist of aqueous solutions, slurries, and organic liquids. If necessary for waste characterization purposes, these wastes will be sampled and analyzed for total concentrations of hazardous wasteRCRA-regulated metals, VOCs, SVOCs, and for the hazardous wasteRCRA-regulated characteristics of ignitability, reactivity, corrosivity, and toxicity (see Table B-43 for specific analytical methods). In accordance with Method 1311 (TCLP), liquid wastes (i.e., those wastes that contain less than 0.5 percent dry solids) do not require extraction. The liquid waste, after filtration, is defined as the TCLP extract. Liquid waste, therefore, will be characterized

Table B-54
Recommended Sample Containers[a], Preservation Techniques, and Holding Times[b]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Volatile Organics			
Concentrated Waste Samples:	Method 5035[b]: 40-milliliter (mL) vials with stirring bar. Method 5021: See method. Methods 5031 & 5032: 125-mL WM[c]-G[d]. Use Teflon-lined lids for all procedures.	Cool to 4º degrees Celsius (ºC)[e]	14 days
Aqueous Samples:			
No Residual Chlorine Present	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Cool to 4ºC and adjust pH[f] to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$	14 days
Residual Chlorine Present	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Collect sample in a 125-mL container which has been pre-preserved with 4 drops of 10% sodium thiosulfate solution. Gently swirl to mix sample and transfer to a 40-mL volatile organic analysis (VOA) vial. Cool to 4ºC and adjust pH to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$	14 days
Acrolein and Acrylonitrile	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Adjust to pH of 4-5. Cool to 4ºC	14 days
Soil/Sediments and Sludges:	Method 5035: 40-mL vials with stirring bar. Method 5021: See method. Methods 5031 & 5032: 125-mL WM[c]-G[d]. Use Teflon-lined lids for all procedures.	See the individual method	14 days
Semivolatile Organics/Organochlorine Pesticides and Herbicides			
Concentrated Waste Samples:	125 mL WM[c]-G[d] with Teflon®-lined lid	None	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Soil/Sediments and Sludges:	250 mL WM[c]-G[d] with Teflon®-lined lid	Cool to 4ºC	Samples must be extracted within 14 days and analyzed within 40 days following extraction.

Table B-54 (Concluded)
Recommended Sample Containers[a], Preservation Techniques, and Holding Times[b]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Liquid Samples:			
No Residual Chlorine Present	1-gallon (gal.), 2 x 0.5 gal., or 4 x 1 liter (L) AG[g] container with Teflon®-lined lid	Cool to 4ºC	Samples must be extracted within 7 days and extracts analyzed within 40 days following extraction
Residual Chlorine Present	1-gal., 2 x 0.5 gal., or 4 x 1-L AG[g] with Teflon -lined lid	Add 3-mL 10% sodium thiosulfate solution per gallon (or 0.008%). Addition of sodium thiosulfate solution to sample container may* be performed in the laboratory prior to field use. Cool to 4ºC.	Samples must be extracted within 7 days and extracts analyzed within 40 days following extraction
Metals			
Aqueous Samples:			
Metals (except hexavalent chromium and mercury)	1-L P[h] or G[d]	Add nitric acid to adjust pH to less than 2.	180 days
Hexavalent chromium	500-mL P[h] or G[d]	Cool to 4ºC	24 hours
Mercury	500-mL P[h] or G[d]	Add nitric acid to adjust pH to less than 2.	28 days
Soil/Sediments and Sludges:			
Metals (except hexavalent chromium and mercury)	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	180 days
Hexavalent chromium	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	Not established - analyze as soon as possible.
Mercury	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	28 days

All information on test methods from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846,* U.S. Environmental Protection Agency, 1986 and all approved updates. Note that all information is subject to change through future updates.

[a] Smaller sample containers may* be required due to health and safety concerns associated with potential radiation exposure, transportation requirements, and waste management considerations.

[b] Information primarily from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846,* U.S. Environmental Protection Agency, 1986 and all approved updates.

[c] WM = Wide-mouth

[d] G = Glass

[e] Adjust to pH of less than 2 with sulfuric acid, hydrochloric acid, or solid sodium bisulfate.

[f] A term used to describe the hydrogen-ion activity of a system.

[g] AG = Amber glass

[h] P = Polyethylene

by filtering the waste, measuring total constituent concentrations in the resulting filtrate, and comparing these concentrations to the TC regulatory levels in 20 NMAC 4.1.200/40 CFR 261.24 [6-14-0010-1-03].

B.4.43.1.2.3 Sample Handling, Preservation, and Storage

Table B-54 lists QA/QC requirements specified in SW-846 regarding sample containers, preservation techniques, and holding times associated with sample collection. Adherence to these requirements will ensure that sampling and analysis meet quality objectives for data. In the event that the specified criteria are not met, Sandia/DOE will evaluate the data for usability.

Many analytical laboratories provide sample containers and specify required minimum volumes for individual waste types or physical states. The most important determinants of sampling method and volume are the physical state of the waste (liquid, solid, sludge), the waste container, accessibility, waste variability, and safety concerns. Detailed sampling recommendations and guidance are provided in Chapter 9 of SW-846. For solids, 500 grams in a glass container is usually adequate. Liquid sample volumes vary from one liter to approximately eight liters, depending on the number of analyticalsis parameters and solids content. Sample jars for samples to be analyzed for VOCs must be completely filled to minimize volatilization of constituents from the liquid into the "head space."

Sampling is performed with a device appropriate for the waste being sampled. Weighted bottles, bailers, or composite liquid waste samplers are appropriate for sampling liquids in drums. Augers, triers, scoops, and shovels are useful for sampling solid items in containers or other locations.

B.34.41.2.4 Analytical Laboratory Selection and Analytical Methods [20 NMAC 4.1.500/40 CFR 264.13(b)(2)]

Analytical laboratories will perform the detailed qualitative and quantitative chemical analyses specified in SW-846 or equivalent methods that are listed in Table B-43 and applicable to the constituentparameter(s) of concern associated with a particular waste type. These laboratories must have:

- A documented comprehensive QA/QC program,
- Technical analytical expertise,
- A document control/records management plan, and
- The capability to perform data reduction, validation, and reporting.

The selection and development of analytical testing methods for SNL/NM waste types were based on the following considerations:

- The physical form of the waste,
- Constituents of interest,

- Required detection limits (e.g., regulatory thresholds), and

- Information requirements (e.g., waste characterization, verifying compliance with LDR treatment standards for wastes treated at an SNL/NM Unit).

Collectively, these factors contributed to the selection of the analytical methods specified in Table B-43. Approved laboratories that meet the above criteria will analyze waste samples for hazardous wasteRCRA-regulated constituents (e.g., VOCs, SVOCs, and metals) and characteristics (i.e., ignitability, reactivity, corrosivity, toxicity), according to the specifications in Table B-43.

B.54 OFF-SITE WASTE ACCEPTANCE PROCEDURES [20 NMAC 4.1.500/ 40 CFR 264.13(a)(3)(ii) and (a)(4), 264.13(b)(5), and 264.13(c)]

RCRA-regulated wastes from off-site sources will be accepted at SNL/NM. These wastes and sources include:

- RCRA-regulated wastes generated by Sandia employees (or contractors in the service of Sandia) outside the KAFB boundary will be accepted for storage and/or treatment if the wastes are properly characterized and transported.

- Wastes or waste residuals associated with off-site treatment of Sandia/DOE wastes or waste streams managed or treated by off-site facilities will be returned to SNL/NM for storage and/or treatment if all such wastes are properly characterized and transported.

- Wastes will be received from other (non-Sandia) off-site DOE facilities for final characterization, storage, treatment, and/or transport to other off-site facilities, only if all such wastes are properly characterized and transported.

The general waste acceptance procedures that will be used when RCRA-regulated wastes are accepted from off-site sources are discussed below. These procedures will be used to meet the requirements of 20 NMAC 4.1.500/40 CFR 264.13(a)(3)(ii), 264.13(a)(4), 264.13(b)(5), and 264.13(c) [6-14-0010-1-03]. The process used for managing off-site wastes at SNL/NM is diagrammed in Figure B-1 and explained below.

The basis for characterization of RCRA-regulated wastes or waste streams to be accepted by Sandia/DOE is generator documentation of the waste. Prior to waste shipment to SNL/NM, the appropriate Unit personnel receive a waste transfer request and characterization data from an off-site generator. Unit personnel review the request from the off-site generator for completeness and conformance with the waste characterization objectives and process described in Section B.2 of this WAP.

For wastes received from off-site small quantity and large quantity generators, Sandia/DOE will require an LDR notification that addresses LDR requirements applicable to the specific waste type and will inform the generators in writing that Sandia/DOE has the appropriate permit(s) for and will accept the waste (20 NMAC 4.1.500/40 CFR 264.12[b] [6-14-0010-1-03]).

After the documentation has been reviewed and determined to be complete, the waste will be shipped to SNL/NM where the shipment records, LDR Notification Forms (if needed), Uniform

Hazardous Waste Manifest (if needed), and proper generator signatures are reviewed to ensure the accuracy and completeness of documentation and compliance with container management requirements. If discrepancies are found, acceptable options for resolution include shipment of the waste back to the off-site generation facility, or temporary storage pending further analysis or characterization.

B.54.1Waste Manifest Verification

Each Uniform Hazardous Waste Manifest that accompanies a waste shipment is checked for the following information:

- The shipment identification number;
- The name, address, and EPA identification number of the generator;
- The name and EPA identification number of the transporter;
- The destination of the waste shipment (i.e., SNL/NM) including the facility address and EPA identification number;
- Any EPA Hazardous Waste Numbers
- The proper U.S. Department of Transportation (DOT) shipping name and number;
- The quantity (e.g., weight) of waste in the shipment;
- The number and type of containers in the shipment; and
- A signed and dated certification of the contents of the shipment.

B.54.2Waste Shipment Verification

A visual inspection of the shipment will be conducted by Unit personnel to ensure that the number and type of container(s) match the manifest and the labeling on the container(s) is complete and matches the manifest. If discrepancies are found, acceptable options for resolution include shipment of the waste back to the off-site generation facility, or temporary storage pending further analysis or characterization. If any discrepancies between the shipment and associated documentation are found that cannot be resolved within 15 days after receiving the waste, Sandia/DOE will send a notification to the New Mexico Environment Department in accordance with 20 NMAC 4.1.500/40 CFR 264.72 [6-14-0010-1-03].

B.54.3Waste Description Verification

Unit personnel review waste data, including acceptable knowledge, sampling and analysis data, and treatment records for completeness following the process described in Section B.2 of this WAP. The exact parameters to be verified are determined by Unit personnel at the time of waste receipt,

based upon the generator-supplied information~~ and requirements of the off-site TSDF that will ultimately receive the waste~~.

Fingerprint analyses will typically be conducted by Unit personnel for waste received from off site in one-time quantities larger than 30 gallons to verify the waste characterization information provided by the generator. The parameters (e.g., specific gravity, color, flash point, and pH) that are tested by fingerprint analysis are based on the information provided by the generator and the expected characterization of the waste.

If the fingerprint analyses results do not match the waste characterization designated on the accompanying Uniform Hazardous Waste Manifest, Unit personnel will perform waste characterization analyses described in Section B.43 of this WAP or send the waste back to the facility where it was initially generated.

B.65 SPECIAL PROCEDURAL REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264.13(b)(6)]

RCRA-regulated waste management requirements specific to ignitable, reactive, and incompatible waste, as well as for compliance with LDR and 20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC [6-14-0010-1-03] regulations, are described below.

B.65.1Procedures for Ignitable, Reactive, and Incompatible Wastes

Pursuant to 20 NMAC 4.1.500/40 CFR 264.17 [6-14-0010-1-03], Unit personnel take the necessary precautions to prevent accidental ignition or reaction of wastes at SNL/NM Units. Unit personnel also take the necessary precautions to ensure that incompatible wastes are identified and managed appropriately. These precautions are described in Section 1.1.2 of the General Part B and in Section 1.2.2 of each Unit-specific module.

As described in those sections, Sandia/DOE rely on waste characterization data and/or published chemical information (e.g., “NIOSH Pocket Guide to Chemical Hazards” [DHHS, 1994] or other chemical or engineering handbooks) for each waste in a planned treatment or repackaging operation involving ignitable, reactive, and incompatible wastes. This includes, but is not limited to, the segregation of these wastes according to compatibility groups (e.g., flammables/ignitables, oxidizers, corrosive acids, reactive with water, corrosive bases, and other reactives) and by the physical nature of the waste (i.e., liquids and solids).

B.65.2Procedures to Ensure Compliance with LDR Requirements [20 NMAC 4.1.800/40 CFR 268.7(b), 268.9(b), and 268.9(d)]

Pursuant to 20 NMAC 4.1.800/40 CFR 268 [6-14-0010-1-03], Sandia/DOE will comply with LDR requirements for wastes stored or treated at the SNL/NM Units: through compliant management of wastes subject to LDR storage prohibitions, and through characterization of treated waste (i.e., RCRA-regulated wastes treated at SNL/NM Units) for LDR compliance, and processing of the applicable LDR certifications and notifications for such treated wastes.

B.65.2.1 Storage Prohibitions (20 NMAC 4.1.800/40 CFR 268.50)

RCRA-regulated wastes are restricted from land disposal under 20 NMAC 4.1.800/40 CFR 268, Subpart C [6-14-0010-1-03] unless they meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268 Subpart D. Restricted wastes (i.e., wastes that do not meet the applicable treatment standards) can be stored for up to one year at SNL/NM Units in compliance with 20 NMAC 4.1.800/40 CFR 268.50. Sandia/DOE assume that all of the RCRA-regulated wastes at SNL/NM are restricted from land disposal (i.e., they do not meet the applicable treatment standards) and apply the one-year storage limit to all RCRA-regulated wastes stored at any Unit except as noted below:

- RCRA-regulated wastes that are subject to the Federal Facilities Compliance Order (FFCO) (NMED 1995, as amended) between DOE, Sandia, and NMED can be stored at SNL/NM Units for more than one year even if they do not meet the treatment standards. Information about FFCO applicability is maintained in the operating record described in Section 9.0 of the General Part B.

- RCRA-regulated wastes that are not subject to the FFCO and do not meet the treatment standard(s) could be stored at SNL/NM Units for more than one year, solely for the purpose of accumulating sufficient quantities of RCRA-regulated waste to facilitate proper recovery, treatment, or disposal, in accordance with 20 NMAC 4.1.800/40 CFR 268.50(c). Information regarding proper recovery, treatment, or disposal is maintained in the operating record described in Section 9.0 of the General Part B.

- RCRA-regulated wastes that meet the treatment standards are not subject to the one-year storage limit. These wastes are characterized to determine compliance with the applicable treatment standard(s) using the process described in Section B.6.2.2. Analytical data or other information demonstrating compliance with the applicable treatment standard(s) is maintained in the operating record described in Section 9.0 of the General Part B.

B.65.2.2 Characterization for LDR Compliance: Wastes Generated Through Treatment of RCRA-Regulated Wastes at SNL/NM Units

RCRA-regulated waste generated through treatment at SNL/NM Units (e.g., treated waste, treatment residue) is characterized as required by the off-site TSDF receiving the waste to determine whether it meets the applicable LDR treatment standards in 20 NMAC 4.1.800/40 CFR 268, Subpart D [6-14-0010-1-03]. The information required of Sandia/DOE as the generator of the treated waste is dependent on any subsequent treatment that will be performed and the ultimate disposal method; therefore, Sandia/DOE characterize the treated waste specifically to meet the requirements of the off-site TSDF receiving it. The requirements of the off-site TSDF are based on their permit conditions and the treatment and/or disposal method.

Waste that must meet concentration-based treatment standards prior to shipment off site for disposal will be evaluated to determine if applicable constituent concentration levels have been attained, as described in Section B.2.5. If a waste is known to meet applicable LDR treatment standards for certain constituents before treatment, testing the newly-generated waste (treatment residue) to certify LDR compliance for those constituents is not necessary. Section B.2.53.1.1 of this WAP includes a discussion of the criteria used to determine if acceptable knowledge is appropriate for characterizing a waste or waste stream with respect to , including the determination

of LDR compliance for treatment residues. Likewise, if a waste must be treated by one or more specified treatment methods (e.g., macroencapsulation) prior to land disposal, analytical testing to certify LDR compliance for the newly-generated waste before treatment is generally not necessary, as described in Section B.2.53.3.

If acceptable knowledge or use of a specified treatment technology isare not appropriate for determining LDR compliance status, the treated waste will be sampled and analyzed to certify that it meets LDR treatment standards. The analysis will determine the total concentration of hazardous wasteRCRA-regulated constituents in the treatment residue, or the concentrations of hazardous wasteRCRA-regulated constituents in an extract of the residue obtained using Test Method 1311 in SW-846, as appropriate for the individual waste. Analytical results obtained in support of LDR requirements will be retained within the Unit operating record. Characterization of treatment residues for LDR compliance will include hazardous wasteRCRA-regulated constituents that were introduced as part of the treatment process, as discussed in Section B.2.53.3.

For wastes generated through treatment at one of the SNL/NM Units, SNL/NM will comply with the applicable requirements of 20 NMAC 4.1.800/40 CFR 268.7(b), 268.9(b) and (d), 268.40(c), and 268.49 [6-14-0010-1-03]. RCRA-regulated treatment residues that are determined through analysis or acceptable knowledge to meet treatment standards as specified in 20 NMAC 4.1.800/40 CFR 268, Subpart D [6-14-0010-1-03], will be sent to a permitted TSDF for disposal without further treatment. Wastes that have been generated through treatment using technologies specified in 20 NMAC 4.1.800/40 CFR 268.42, and 268.44, or 268.45 [6-14-0010-1-03] will also be sent to a permitted TSDF for disposal without further treatment. Residues that do not meet all of the applicable treatment standards will be sent to a permitted TSDF for further treatment.

Whenever Sandia/DOE send waste to an off-site TSDF for treatment and/or disposal as described above, it is in accordance with that facility's waste acceptance criteria. For treated wastes and residues generated at Units through treatment operations described in the General Part B and Unit-specific modules, Unit personnel review the LDRs as they relate to the further treatment and/or disposal of the treated waste at the TSDF that will accept the waste. Sandia/DOE obtain approval from the TSDF and meet TSDF-specific waste analysis requirements (including LDR requirements) prior to shipment.

Part of this review includes evaluating the waste for UHCs and Universal Treatment Standards for the treated wastes, and documenting the results of the evaluation as part of the certification process. UHCs must be declared if reasonably expected to be present in D001 through D0043 wastes. Unit personnel complete an appropriate LDR notification form (including signed certification) that accompanies the Uniform Hazardous Waste Manifest as part of the shipping documentation to the TSDF. Records are maintained at Sandia/DOE as discussed in Section 9.0 of the General Part B.

B.65.2.3 Characterization for LDR Compliance: Wastes From Off-Site Sources

For wastes received from off-site large quantity generators, Sandia/DOE will require an LDR notification that addresses LDR requirements applicable to the specific waste type. If off-site wastes are treated at SNL/NM, Sandia/DOE will comply with the requirements of 20 NMAC 4.1.800/40 CFR 268.7(b) [6-14-0010-1-03] as discussed above.

When shipping the waste to an off-site TSDF, Sandia/DOE will use the process described in Section B.5.2.2 for characterizing the waste in accordance with that facility's waste acceptance criteria.

B.65.3 Procedures to Ensure Compliance with Air Emission Requirements [20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC]

Sandia/DOE manage wastes that are subject to some of the requirements in 20 NMAC 4.1.500/ 40 CFR 264, Subparts AA, BB, and CC [6-14-0010-1-03] as discussed in Section 1.1.4.6 of the General Part B. Sandia/DOE wastes and waste streams described in this WAPdocument may* be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/40 CFR 264.1080 [6-14-0010-1-03]. For wastes that are not eligible for exemption under 20 NMAC 4.1.500/40 CFR 264.1080(b) [6-14-0010-1-03], Sandia/DOE will address the applicable 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03] requirements for control of air pollutant emissions from each Unit subject to the regulations, as follows:

- In lieu of determining the concentration of VOCs in a waste or waste stream at the point of origination, Sandia/DOE may* declare that a container holding waste that contains VOCs is subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC.

- To establish 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03] applicability for a specific waste or waste stream, the initial generator will follow the waste determination procedures specified in 20 NMAC 4.1.500/40 CFR 264.1083(a) [6-14-0010-1-03] to determine the concentration of VOCs in the waste or waste stream at the point of origination and document this determination or assume/declare that the waste is subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03] as listed above. Acceptable knowledge or process knowledge will be used to make this determination; however; if sampling and analysis is necessary, it will be performed in accordance with the approved methods listed in Tables B-43 and B-5.

- Whenever changes to the source generating the waste stream are reasonably likely to cause the average VOC concentration of the RCRA-regulated waste to increase to a level that is equal to or greater than the applicable VOC concentration limits specified in 20 NMAC 4.1.500/40 CFR 264.1082, a new waste determination will be performed, as specified in 20 NMAC 4.1.500/40 CFR 264.1083(a)(1)(ii).

- The characterization documentation for VOCs will be reviewed by the Unit personnel as part of the characterization process prior to acceptance of the waste, as discussed in Section B.23. If process knowledge in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(a)(4) is insufficient, sampling and analysis of the waste will be required, in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(a)(3) [6-14-0010-1-03].

- RCRA-regulated wastes containing VOCs that are newly generated through treatment will be characterized for VOC content in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(b) [6-14-0010-1-03] if the waste being treated contains VOCs, and/or the treatment process involves VOCs.

- Routinely-generated RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [6-14-0010-1-03], will be reviewed and updated at least once every 12 months (20 NMAC 4.1.500/40 CFR 264.1082(c)(1) [6-14-0010-1-03]) to determine whether the Subpart CC requirements continue to apply.

B.76 RECORDS

Once Unit personnel have adequate characterization for a RCRA-regulated waste, the information is typically entered into a waste tracking database. Each package (the smallest discrete waste item) is assigned a unique identification and tracking number before it is picked up and transported to a Unit. Characterization information and analytical data associated with the package is either in paper or electronic format. Unit personnel perform activities that affect a waste package (e.g., movement, repackaging, additional characterization, treatment, or shipment to an off-site TSDF). Information about these activities is added to the paper and/or electronic record for each package. The records are maintained as discussed in Section 9.0 of the General Part B.

REFERENCES

American Society for Testing and Materials, 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," ASTM D4547-91, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.

ASTM, see American Society for Testing and Materials

Cotsworth, 2002, “Hazardous Waste Generated in Laboratories”, memo to RCRA Senior Policy Advisors, EPA Regions I-X, US Environmental Protection Agency, Office of Solid Waste.

DHHS, see U.S. Department of Health and Human Services.

DOE, see U.S. Department of Energy.

EPA, see U.S. Environmental Protection Agency.

New Mexico Environment Department (NMED), 1995, as amended, “Federal Facilities Compliance Order,” Compliance Order between the NMED, the U.S. Department of Energy, and Sandia Corporation.

NMED, see New Mexico Environment Department.

NRC, see U.S. Nuclear Regulatory Commission

SNL/NM, see Sandia National Laboratories/New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 20043, “Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Revision 75.0,” Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

U.S. Department of Energy (DOE), 2001~~1999~~, "~~Implementation Guide to~~ Radioactive Waste Management Manual," DOE M 435.1-1, U.S. Department of Energy, Office of Environmental Management, Washington, D.C.

U.S. Department of Health and Human Services (DHHS), 1994, "NIOSH Pocket Guide to Chemical Hazards," National Institute for Occupational Safety and Health.

U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds," EPA 1/540/4-91/001, Office of Research and Development.

U.S. Environmental Protection Agency (EPA), 1992, "Characterizing Heterogeneous Wastes: Methods and Recommendations," U.S. Environmental Protection Agency, Environmental Systems Monitoring Laboratory, Office of Research and Development, Las Vegas, Nevada.

U.S. Environmental Protection Agency (EPA), 1994, "Waste Analysis at Facilities that Generate Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual," *OSWER 9938.4-03*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C.

U.S. Environmental Protection Agency (EPA) and U.S. Nuclear Regulatory Commission (NRC), 1997, "Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste", *Federal Register*, Vol. 62, No. 224, U.S. Government Printing Office, Washington D.C.

This page left intentionally blank.

APPENDIX C

SITE-WIDE INSPECTION PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF FIGURES ..... SW-C-ii
ACRONYMS AND ABBREVIATIONS ..... SW-C-iii
C.1 INSPECTION REQUIREMENTS FOR UNITS SW-C-1
C.1.1 Inspection Records SW-C-1
C.1.2 Remedial Action SW-C-2
C.2 TYPICAL INSPECTION SCHEDULE AND REQUIREMENTS FOR UNITS SW-C-2
C.2.1 Daily SW-C-3
C.2.2 Weekly SW-C-3
C.2.3 Monthly SW-C-3
C.3 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART AA REQUIREMENTS SW-C-4
C.4 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART BB REQUIREMENTS SW-C-4
C.5 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS SW-C-4

LIST OF FIGURES

Figure No.	Title
C-1	Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit, Daily Inspection Form – Example
C-2	Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit, Weekly/Monthly Inspection Form – Example

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
RCRA	Resource Conservation and Recovery Act
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SITE-WIDE INSPECTION PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX (20 NMAC 4.1.900), adopting by reference the Code of Federal Regulations, Title 40, Part 270 including Section 270.14(b)(5) (40 CFR 270.14[b][5]), and 20 NMAC 4.1.500/40 CFR 264.15, "General Inspection Requirements," revised ~~June 14, 2000~~October 1, 2003 [~~6-14-00~~10-1-03], this appendix presents site-wide inspection requirements applicable to the Resource Conservation and Recovery Act (RCRA)-regulated waste management units (Units) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE).

Pursuant to 20 NMAC 4.1.500/40 CFR 264.15(a) [~~6-14-00~~10-1-03], inspection schedules for the Units have been developed to identify equipment malfunctions and deterioration, operator errors, and discharges that might cause or lead to a release of RCRA-regulated waste and pose a threat to human health and the environment. This inspection plan, which presents general inspection schedules, is being submitted as required by 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [~~6-14-00~~10-1-03]. Unit-specific inspection requirements are provided in Section 4.0 of each Unit-specific module. Together, information in this appendix, in the General Part B, and in each Unit-specific module meets the applicable regulatory requirements.

C.1 INSPECTION REQUIREMENTS FOR UNITS [20 NMAC 4.1.900/40 CFR 270.14(b)(5), and 20 NMAC 4.1.500/40 CFR 264.15, 264.174, and 264.602]

In accordance with the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [~~6-14-00~~ 10-1-03], and 20 NMAC 4.1.500/40 CFR 264.15(b)(1), 264.174, and 264.602 [~~6-14-00~~10-1-03], SNL/NM Units are inspected for malfunctions and deterioration, operator errors, and discharges which may be causing, or may lead to, a release of hazardous~~RCRA-regulated~~ waste constituents to the environment or a threat to human health. Inspections include monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing, detecting, and responding to environmental or human health hazards caused by RCRA-regulated waste. Containers of RCRA-regulated waste stored at a Unit are also routinely inspected to assess container integrity, closure, labeling, secondary containment, location with respect to incompatible wastes, and waste and container compatibility. Additional detail about specific items and areas is included in each Unit-specific module.

A copy of this appendix, which includes relevant inspection schedules, is maintained at each Unit, together with the Unit-specific inspection plan, unless specified otherwise in Section 4.0 of each Unit-specific module, as required in 20 NMAC 4.1.500/40 CFR 264.15(b)(2) [~~6-14-00~~10-1-03].

C.1.1 Inspection Records [20 NMAC 4.1.500/40 CFR 264.15(d)]

Unit personnel are assigned to conduct inspections and record the information on inspection forms. Figures C-1 and C-2 are representative of the inspection forms completed by personnel inspecting SNL/NM Units. Figures C-1 and C-2 are provided for informational purposes only;

the forms are subject to change. Any forms used will be functionally equivalent to the ones shown as Figures C-1 and C-2. The inspection forms identify the items to be inspected and the potential problems that may occur (20 NMAC 4.1.500/40 CFR 264.15(b)(3) [~~6-14-00~~10-1-03]). Additional detail is included in each Unit-specific inspection plan. The following information is recorded on the inspection forms.

- Name of inspector
- Date and time of inspection
- Notation of observations and results of the inspection
- Date and nature of any repairs or remedial action.

For each Unit, inspection records are maintained for a minimum of three years from the date of inspection. Current calendar year records are maintained at the Unit. Previous calendar year records may be maintained at the Unit, SNL/NM Records Center, or as noted in Section 4.0 of each Unit-specific module.

C.1.2 Remedial Action [20 NMAC 4.1.500/40 CFR 264.15(c)]

For every item requiring inspection, a response indicating the condition of each item must be entered in the appropriate column on the form. If any defects, deterioration, damage, or potential hazards are discovered during an inspection or observed during waste handling activities, Unit personnel begin taking corrective action upon discovery to ensure that the problem does not lead to an environmental or human health hazard. Appropriate action may include evaluation and removal of accumulated liquids from secondary containment, transfer of waste from a defective container to an appropriate container in good condition, or repair or replacement of nonfunctioning equipment and/or systems. If an inspection or observation during waste handling reveals that a nonemergency problem has developed, corrective action including repairs, maintenance, and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs.

Corrective action(s) taken in response to conditions discovered during an inspection or observed during waste handling are noted on the inspection forms. The corrective action(s) taken (along with time, date, and other pertinent information) are recorded in the appropriate section of the inspection form on which the condition and corrective action ~~was~~were first noted or in the first form after the corrective actions are completed. For example, corrective actions in response to conditions observed during waste handling are noted in the form for that day or in the form for the first daily inspection following implementation of the corrective action. Corrective actions in response to conditions discovered during a weekly inspection are noted in the appropriate section of the form for the discovery date or in the form for the first weekly inspection ~~form~~ completed following implementation of the corrective action.

C.2 TYPICAL INSPECTION SCHEDULE AND REQUIREMENTS FOR UNITS [20 NMAC 4.1.500/40 CFR 264.15(b)(4), 264.174, and 264.602]

The schedules described in this section are followed for the inspection of the items and areas noted in Section C.1. Inspections may be conducted at any time during the applicable time period (e.g., day, week, month) specified in the inspection schedule.

The U.S. Air Force, which operates Kirtland Air Force Base, may, for security or other reasons, deny access to Sandia/DOE personnel performing periodic Unit inspections. In such cases, Unit personnel will resume inspections as soon as possible after access is granted, and will document the missed inspections and reasons on the next inspection report.

SNL/NM Units are typically inspected according to the schedule provided below. Inspection frequencies have been developed based on the deterioration rates of equipment/systems and likelihood of failure, and the probability of harm to human health or the environment if: 1) the equipment/system fails between inspections; or 2) operator error goes undetected between inspections. Equipment and systems most likely to fail and those whose failure could lead to severe consequences are inspected most frequently.

The inspection frequencies for specific equipment and areas of operation at each Unit are listed in Section 4.0 of each Unit-specific module. Those detailed schedules are consistent with the general schedule described here.

C.2.1 Daily

A daily Unit inspection is conducted during each day that RCRA-regulated waste~~s~~ are handled~~ing occurs~~ at that Unit. Waste handling includes when RCRA-regulated waste is received at, moved or opened within, treated at, or removed from a WMA. An example of a daily inspection form (Figure C-1) lists the items typically addressed. A detailed list of items is included in Section 4.0 of each Unit-specific module.

C.2.2 Weekly

A weekly Unit inspection is conducted at least once during each week that RCRA-regulated waste is stored at that Unit. The example of a weekly inspection form (Figure C-2) lists the items typically addressed (included in Item 10 on the form). A detailed list of items is included in Section 4.0 of each Unit-specific module. For the purposes of inspections, weekly is defined as Sunday through the following Saturday.

C.2.3 Monthly

Safety and emergency equipment, security devices, and Unit operating and structural equipment are inspected on a monthly schedule at each active and inactive Unit. Monthly inspections are conducted at WMAs not currently in use for management of RCRA-regulated waste~~s management~~. Items 7, 8, and 9 on the monthly inspection form (Figure C-2) identify the items to be inspected at active and inactive WMAs. A detailed list of items is included in Section 4.0 of each Unit-specific module.

C.3 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART AA REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart AA]

Sandia/DOE do not manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight using process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. Therefore, Sandia/DOE are exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [~~6-14-00~~10-1-03].

C.4 INSPECTION and MONITORING FOR UNITS SUBJECT TO SUBPART BB REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart BB]

Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [~~6-14-00~~10-1-03]. Equipment used in such service will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 264.1060 [~~6-14-00~~10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 1050(f) [~~6-14-00~~10-1-03].

C.5 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart CC]

Containers are visually inspected either at the time of pickup from a generator site, as they are unloaded from a transport vehicle at a Unit, or within 24 hours of acceptance at a Unit. The visual inspection assures that there are no cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position, in accordance with Container Level 1 air emission standards in 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03]. The inspection requirements for these containers are specified in 20 NMAC 4.1.500/40 CFR 264.1086(c)(4) [~~6-14-00~~10-1-03]. At each Unit where such containers are handled and/or stored, personnel take the following steps:

- Check containers and the condition and placement of their covers during inspections of handled and stored containers.

- Take remedial actions if needed. Unit personnel begin taking corrective action upon discovery of a defect in the container, cover, or closure device. Repairs will be completed as soon as possible. If the repairs are not completed in 5 calendar days, the waste will be transferred to a container in good condition.

- Record container conditions and remedial actions taken in the applicable inspection reports: daily reports for containers that are handled, or weekly inspection reports for stored containers.

Figure C-1
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Daily Inspection Form – Example

1. Area(s) Inspected (i.e., Loading/Unloading Area, Treatment Area) _____
2. Structure(s) Inspected (i.e., HWMF, TTF, RMWMF/CWMF, AHCF, MSB Bunker #)
3. Inspection Date _____
4. Inspection Time _____ am/pm
5. Inspector Name (print) _____

5. Loading/ Unloading Area(s)[a]	Inspection Criteria	Yes	No	NA ( ) load	Corrective Action Issue	Corrective Action Taken and Closure Date
Loading/Unloading Area[c]	Good condition, safe working surface, no spills					
Waste Handling Equipment[c]	Good condition, operational					
Container(s) Loaded/ Unloaded	Good condition					

6. Treatment Area(s)[b,c]	Inspection Criteria	Yes	No	NA ( ) treat	Corrective Action Issue	Corrective Action Taken and Closure Date
Treatment Area	Good condition					
Treatment Unit and/or Equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or corrosion), maintains established parameters					
Monitoring Equipment	Good condition, operational					

7. Comments and Notes Comment on deficiencies by referencing section and question.

Inspector Signature: _____

Immediately file the completed inspection form in the Unit operating record.

[a] Required on days ~~RCRA-regulated waste~~ loading/unloading operations involving RCRA-regulated wastes are conducted.
[b] Required on days ~~RCRA-regulated waste~~ treatment operations involving RCRA-regulated wastes are conducted.
[c] Required monthly with facility operating and structural equipment if RCRA-regulated wastes are not managed at Unit during the month.

Figure C-2
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Weekly/Monthly Inspection Form – Example

1. Structure(s) Inspected (i.e., HWMF, TTF, RMWMF/CWMF, AHCF, MSB Bunker #) _____
2. Inspection Date _____
3. Inspection Time _____ am/pm
4. Inspector Name (print) _____
5. Monthly
   Weekly

6. ~~Storage~~ Status[a]	Inspection Criteria	Yes	No
RCRA-regulated waste currently stored at Unit~~Structure~~	Storage status (Yes–waste present, No–waste not present)		
RCRA-regulated waste currently undergoing treatment at Unit	Treatment status (Yes–waste present, No–waste not present)		

7. Safety & Emergency Equipment[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Spill Control Equipment	Present, good condition					
Fire Extinguisher(s)	Present, good condition, charged					
Decontamination Equipment	Present, good condition					
External Communication System	Present, operational					
Internal Communication and Alarm System	Present, operational					
Fire Suppression System (e.g., Water, Dry Chemical)	Present					

8. Security Devices[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Facility Fence	Good condition					
Gate(s) and Door(s)	Operational					
Warning Sign(s)	Present, legible					
Lock(s) and Tamper Indication Device(s)	Present, good condition					

Refer to footnotes at end of form.

Figure C-2 (Continued~~cluded~~)
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit
Weekly/Monthly Inspection Form – Example

9. Facility Operating & Structural Equipment[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Floor, Walls, Ceiling	Good condition					
Lighting	Operational					

10. Treatment Area(s)[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Treatment Area (i.e., floor, walls) Condition	Good condition					
Fume Hood	Good condition					
Treatment Unit and/or Equipment (e.g. hand tools)	Good condition (i.e., no releases or corrosion), maintains established parameters					
Monitoring Equipment	Good condition, operational					

11~~0~~. Containers ~~Storage~~[c]	Inspection Criteria	Yes	No	NA ( ) monthly	Corrective Action Issue	Corrective Action Taken and Closure Date
Container Placement	Correct aisle space, correct stacking					
Container Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)					
Container Sealing	Correct lid/cover placement (i.e., closed)					
Container Labeling	Correct information, correct location, legible					
Storage Area (i.e., floor, walls) Condition	Good condition					
Secondary Containment (liquid waste)	Adequate volume, free of liquids, good condition					
Storage Conditions	Waste compatibility, container compatibility					

Refer to footnotes at end of form.

Figure C-2 (Concluded)
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Weekly/Monthly Inspection Form – Example

~~11~~12. Comments and Notes Comment on deficiencies by referencing section and question.

Immediately file the completed inspection form in the facility operating record.

[a] Weekly inspection criteria are not applicable if RCRA-regulated waste is not stored or treated at structure. Monthly inspection criteria are still applicable.
[b] Required during a monthly inspection. Criteria are not applicable during weekly (only) inspection.
[c] Required during a weekly inspection. Criteria are not applicable during monthly (only) inspection.

Inspector Signature: _____

Inspector Name ~~(signature)~~ _____

APPENDIX D

SITE-WIDE PERSONNEL TRAINING PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-D-ii
LIST OF FIGURES ..... SW-D-iii
ACRONYMS AND ABBREVIATIONS ..... SW-D-iv
D.1 RCRA-REGULATED WASTE MANAGEMENT RESPONSIBILITIES SW-D-1
D.2 JOB TITLE/JOB DESCRIPTION SW-D-1
D.3 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES SW-D-2
D.4 TRAINING DIRECTOR SW-D-2
D.5 EMERGENCY TRAINING SW-D-7
D.6 IMPLEMENTATION OF TRAINING PROGRAMS SW-D-7

LIST OF TABLES

Table No.	Title
D-1	Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Training Content
D-2	Training for Each Job Title

LIST OF FIGURES

Figure No.	Title
D-1	Job Title, Description, And Qualifications RCRA Training Director
D-2	Job Title, Description, And Qualifications RCRA Project Leader
D-3	Job Title, Description, And Qualifications RCRA Emergency Coordinator
D-4	Job Title, Description, And Qualifications RCRA Chemist
D-5	Job Title, Description, And Qualifications RCRA Field Technician
D-6	Job Title, Description, And Qualifications RCRA Special Project Staff
D-7	Job Title, Description, And Qualifications RCRA Inspector
D-8	Job Title, Description, And Qualifications RCRA Transportation Manager
D-9	Job Title, Description, And Qualifications RCRA Unit Operations Support Staff

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management Unit

SITE-WIDE PERSONNEL TRAINING PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This appendix describes site-wide personnel training requirements for Sandia National Laboratories/New Mexico (SNL/NM) Resource Conservation and Recovery Act (RCRA)-regulated waste management unit (Unit) workers. Unit-specific training requirements, if any, for SNL/NM Unit workers are provided in Section 5.0 of each Unit-specific module. Together, information in the General Part B, in this appendix and in each Unit-specific module meets the applicable regulatory requirements.

Training requirements for Unit personnel are specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V, (20 NMAC 4.1.500), adopting by reference the Code of Federal Regulations, Title 40, Part 264 including Section 264.16 (40 CFR 264.16), revised October 1, 2003~~June 14, 2000~~ [~~6-14-00~~10-1-03], "Personnel Training." The primary objective of the training program is to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste, in accordance with 20 NMAC 4.1.500/40 CFR 264 [~~6-14-00~~10-1-03]. This training program applies to all employees of the U.S. Department of Energy, Sandia Corporation, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at SNL/NM Units included in this ~~SNL/NM~~ General Part B. The degree of training varies with the job duties.

D.1 RCRA-REGULATED WASTE MANAGEMENT RESPONSIBILITIES

This program provides employees with training relevant to their positions. Unit personnel are given, at a minimum, a basic understanding of the RCRA regulatory requirements for waste management, emergency procedures, and operating procedures. Some employees receive additional classroom and on-the-job training designed for specific duties. Employees who have not received training or are unable to provide relevant and appropriate training documentation receive the required training within six months of assignment to RCRA-regulated waste management activities and prior to managing RCRA-regulated waste without supervision.

D.2 JOB TITLE/JOB DESCRIPTION [20 NMAC 4.1.900/40 CFR 270.14(b)(12) and 20 NMAC 4.1.500/40 CFR 264.16(d)(1), (2) and (3)

Job titles and descriptions are provided in Figures D-1 through D-9. The job descriptions include requisite skills, education, and/or other qualifications as well as RCRA-regulated waste management job duties. The required training for each job title is found in Table D-2.

A file of all Unit personnel, including their job titles and job descriptions, is maintained at each Unit unless specified differently in Section 5.0 of each Unit-specific module. For each job title, the file contains information on the minimum activities performed by employees, requisite qualifications, and training records.

D.3 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES [20 NMAC 4.1.900/40 CFR 270.14(b)(12) and 20 NMAC 4.1.500/40 CFR 264.16]

This program provides employees with training relevant to their positions and specific to the safe performance of assigned tasks. For example, personnel who are directly involved in handling RCRA-regulated wastes ~~handling~~ are informed of the potential hazards associated with waste management activities, procedures for safe handling of wastes, and emergency procedures. Individuals in supervisory or decision-making positions receive a comprehensive overview of all aspects of RCRA-regulated waste management. Personnel with specific or short-term assignments, such as visitors or temporary contractors, may only receive training on the contingency plan and emergency response procedures. Personnel who perform h~~H~~ands-on management of RCRA-regulated wastes ~~management personnel~~ receive training commensurate with their assigned duties.

The training program includes a combination of classroom instruction, reviews of written documents, and on-the-job training exercises. Training information is provided according to training topics (e.g., Contingency Plan), frequency (e.g., initial or refresher), and methods (e.g., classroom instruction, procedure review, on-the-job exercises). Training course content includes, at a minimum, the topics shown in Table D-1. As regulatory compliance requirements change, training courses are evaluated and modified, as necessary. The content is reviewed annually. Some training is standardized and given to all employees. Job-specific training appropriate to job function is given to Unit employees. Training is provided at the frequencies shown on Table D-1. Training that may be applicable to each job title is provided in Table D-2.

D.4 TRAINING DIRECTOR [20 NMAC 4.1.500/40 CFR 264.16(a)(2)]

The Unit-specific Department Manager or designee will function as the Training Director. The Manager maintains responsibility for ensuring that all Unit-specific required training is obtained. The Manager/Training Director is knowledgeable about the applicable hazardous~~RCRA-regulated~~ waste management regulations and specific RCRA-regulated waste management operations employed at a Unit. The Manager/Training Director determines the exact content and duration of training required for individual employees.

The Manager/Training Director may perform or delegate training to qualified trainers. Trainers are qualified on the basis of attainment of one or more of the following, as applicable:

- Certification in the subject matter addressed by the training;
- Demonstration of knowledge and competence in the training subject; and/or
- Previous on-the-job and/or classroom training in the topics covered.

Table D-1
Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit
Training Content

RCRA Regulation Training

Duration: Variable (Typically 4 hours or more)
Frequency: Initial/Periodic Refresher (Typically annual)
Method: Classroom instruction, on-the-job training, and/or document review

Minimum content may include (as applicable to the specific Unit to which an employee is assigned):

- Identification of RCRA-regulated waste
- Treatment, storage, and disposal facility requirements
- Generator and transporter requirements

RCRA Contingency Plan and Emergency Procedures

Duration: Variable (Typically 1-4 hours)
Frequency: Initial/Annual Refresher
Method: Classroom instruction, document review, and/or on-the-job exercises

Minimum content must include (as applicable to the specific RCRA-regulated waste management unit to which an employee is assigned):

- Emergency notification procedures
- Response to emergencies
- Evacuation route and procedure
- Emergency equipment and personal protective equipment
- Emergency Coordinator responsibilities
- Post-emergency actions
- Contingency Plan
- Shutdown procedures (if any)

Table D-1 (Continued)
Sandia National Laboratories/New Mexico
RCRA-Regulated Waste Management Unit
Training Content

Technical Work Documents and Refresher

Duration: Variable (Typically 1 hour or more)
Frequency: Initial/Periodic Refresher
Method: Document review, on-the-job training

Minimum Content: This training is function-specific and may be divided into sections or modules. Each employee must participate in the sections that apply to his or her specific job function. Sections may include, but are not limited to:

- Waste Analysis Plan
- Unit-specific safety practices
- Unit-specific operational procedures (e.g., loading and unloading)
- Unit security, entry, and control
- Operation, maintenance, and inspection of equipment
- Prevention of the ignition/reaction of ignitable/reactive wastes
- Permit conditions
- Emergency response
- Unit tour

Table D-1 (Concluded)
Sandia National Laboratories/New Mexico
RCRA-Regulated Waste Management Unit
Training Content

Hazardous Waste Operations and Emergency Response

Duration: Variable (Typically 24 hours or more with an 8-hour refresher)
Frequency: Initial/Refresher (Typically annual)
Method: Classroom instruction, hands-on exercises

Minimum Content:

- Hazardous~~RCRA-regulated~~ waste management ~~and~~ regulations
- Sources of information
- Compatibility of RCRA-regulated wastes
- Personnel protection
- Principles of safety
- Emergency procedures

Table D-2
Training for Each Job Title

Required Training	Job Titles								
	Training Director	RCRA Project Leader	Emergency Coordinator	Chemist	Field Technician (Waste Handler)	Special Projects Staff	Inspector	Transportation Manager	Unit Operations Support Staff
Resource Conservation and Recovery Act (RCRA) Regulations (Applicable Modules)	X	X	X	X	X	X	X	X	
RCRA Contingency Plan and Emergency Procedures	X	X	X	X	X	X	X	X	X
Technical Work Documents (Applicable Modules)	X	X		X	X	X	X		
Hazardous Waste Operations and Emergency Response (24- or 40-hour course)	X	X	X	X	X	X	X	X	
Hazardous Waste Operations and Emergency Response (8-hour course)	X	X	X	X	X	X	X	X	

D.5 EMERGENCY TRAINING [20 NMAC 4.1.500/40 CFR 264.16(a)(3) and (c)]

Appendix E of this permit renewal request/application provides a more detailed discussion of emergency procedures, personnel, and equipment.

Unit employees participate in Unit-specific emergency response training to assure effective emergency response. Emergency response training consists of classroom instruction, document reviews, and/or on-the-job exercises. The content is reviewed annually and revised as needed to incorporate changes in regulatory compliance requirements. Topics covered include at a minimum:

- Emergency notification procedures
- Response to emergencies, including fires, explosions, and releases of RCRA-regulated wastes
- Procedures for using, inspecting, maintaining, and replacing emergency equipment and personal protective equipment
- Procedures for the shutdown of operations (if any)
- Procedures for evacuation (i.e., communications/alarms)
- Responsibilities of the Emergency Coordinator
- Post-emergency reports and actions
- Contingency Plan.

D.6 IMPLEMENTATION OF TRAINING PROGRAMS [20 NMAC 4.1.500/40 CFR 264.16(b) and (c)]

The training program is implemented to assure that Unit personnel receive appropriate training in a timely manner. Employees who require training receive the specified training within six months of their date of hire or their transfer to a new position. Personnel do not work unsupervised in RCRA-regulated waste management areas until they successfully complete the indicated training requirements.

Training records are kept to document the type and amount of training received for each Unit employee who manages RCRA-regulated wastes. Contents of these records include the following, at a minimum:

- Job title for each position related to RCRA-regulated waste management
- The name of the employee assigned to each job title

- Written job description
- Written training requirements for each job title
- Records that document training received, such as attendance or signature lists, certificates, memoranda of training, or reports from computerized databases of training completion status.

Training records for current and former Unit employees are kept at the Unit to which an employee is/was assigned, unless specified differently in Section 5.0 of each Unit-specific module. Training records for current Unit employees are kept until closure of the Unit. Training records for any former Unit employee are kept for a minimum of three years from the date the employee last worked at the Unit.

Job Title: RCRA Training Director

Job Description:
The RCRA Training Director ensures that all appropriate personnel meet the site-wide personnel training requirements for SNL/NM RCRA-regulated waste management Unit workers, including the Unit-specific RCRA training requirements. RCRA Training Director duties may include, but are not limited to:

- Identifying and/or coordinating training required by RCRA regulations and SNL/NM RCRA-regulated waste management worker training requirements.
- Ensuring maintenance of training records required by RCRA regulations and demonstrating compliance with SNL/NM RCRA-regulated waste management worker training requirements for all personnel.
- Informing personnel when specific training is required.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for the RCRA Training Director is:

- High school diploma or equivalent, or bachelor's degree from an accredited post-secondary institution; or
- Three years experience with RCRA waste management regulations

Training:
Initial and refresher training will be as required in Table D-2

FIGURE D-1
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
RCRA TRAINING DIRECTOR

Job Title: RCRA Project Leader

Job Description:
A RCRA Project Leader oversees, supervises, and coordinates collection, storage, and shipment of RCRA-regulated waste at the Sandia National Laboratories/New Mexico. Duties may include, but are not limited to:

- Ensuring operation of the Unit in compliance with applicable RCRA regulations;
- Identifying and coordinating training required by RCRA regulations;
- Determining training and reading requirements specific to positions, tasks or Unit activities;
- Coordinating activities related to management of RCRA-regulated waste at the Unit;
- Ensuring maintenance of records required by RCRA regulations, such as training records, inspection records, waste analysis records, and a RCRA Contingency Plan;
- Ensuring maintenance of additional records required for the Unit operating record;
- Preparing, reviewing, submitting documents on waste management activities;
- Ensuring compliance with RCRA regulations for shipments of RCRA-regulated wastes shipments; and
- Coordinating activities pertaining to audits of RCRA-regulated waste managementaudits.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a RCRA Project Leader is:

- High school diploma or equivalent, or bachelor's degree from an accredited post-secondary institution; or
- Three years experience in managing RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-2
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
RCRA PROJECT LEADER

Job Title: Emergency Coordinator

Job Description:
An Emergency Coordinator evaluates, coordinates, and implements emergency actions in accordance with the RCRA Contingency Plan during an emergency (as defined in the Contingency Plan). As defined in the RCRA Contingency Plan, Emergency Coordinator duties during and after an emergency may include, but are not limited to:

- Identifying the character, exact source, amount, and extent of released RCRA-regulated waste by observation, records reviews, or chemical analysis;
- Assessing possible resulting hazards to human health or the environment considering both direct and indirect effects;
- Taking all reasonable measures necessary to ensure fires, explosions, and releases do not occur, recur, or spread to other RCRA-regulated waste at the Unit including stopping processes and operations, collecting and containing released waste, and removing or isolating containers;
- Monitoring for leaks, pressure buildup, gas generation, and ruptures in valves, pipes, or other equipment if the facility stops operations;
- Providing for properly treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material;
- Ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
- Ensuring that all equipment listed in the Contingency Plan is cleaned and fit for its intended use before resuming operations.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for an Emergency Coordinator is:

- High school diploma or equivalent; or
- Three years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-3
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
EMERGENCY COORDINATOR

Job Title: Chemist

Job Description:
A Chemist conducts supporting characterization of RCRA-regulated waste managed at Sandia National Laboratories/New Mexico. Duties may include, but are not limited to:

- Evaluating generator provided characterization data provided by the initial generator of a solid waste, and obtaining additional information as needed for hazardous waste determination;
- Determining whether solid wastes are hazardous wastes as defined in 20 NMAC 4.1.200/40 CFR 261;
- Assigning appropriate hazardous waste codes to RCRA-regulated wastes;
- Identifying treatment options and treatment standards for RCRA-regulated wastes to be treated on site;
- Evaluating data and/or information for treated wastes and residues to characterize the residues, assign appropriate hazardous waste codes, and determine land disposal restrictions; and
- Segregating RCRA-regulated waste.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a Chemist is:

- High school diploma or equivalent; or
- Two years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-4
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
CHEMIST

Job Title: Field Technician (Waste Handler)

Job Description:
A Waste Handler conducts RCRA-regulated waste handling, segregating, and storing operations at the Sandia National Laboratories/New Mexico. Waste Handler duties may include, but are not limited to:

- Transporting and handling RCRA-regulated waste;
- Conducting daily inspections of waste management Units where RCRA-regulated waste loading, unloading, or treatment operations occur;
- Performing basic maintenance and housekeeping activities;
- Segregating RCRA-regulated waste
- Sorting, packaging, marking, labeling, storing, treating, and segregating RCRA-regulated waste; and
- Compiling and entering into a database specific operating record information.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a Waste Handler is:

- High school diploma or equivalent; or
- Two years experience in handling RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-5
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
FIELD TECHNICIAN

Job Title: Special Projects Staff

Job Description:
A Special Projects Staff member performs ~~special project~~ duties associated with non-routine and special projects at Sandia National Laboratories/New Mexico. Special Projects Staff member duties may include, but are not limited to:

- Handling RCRA-regulated waste during a special project;
- Performing special project related maintenance and housekeeping activities;
- Operating RCRA-regulated waste treatment equipment associated with a special project;
- Storing, labeling, and segregating RCRA-regulated waste associated with a special project; and
- Identifying and scheduling special project activities involving RCRA-regulated waste ~~special project activities~~;
- Monitoring RCRA-regulated waste special project activities for safety and procedural compliance; and
- Compiling special project information for the facility operating record.

Required Skill, Education, or Other Qualifications:
At a minimum, the qualification for a Special Projects Staff member is:

- High school diploma or equivalent; or
- Two years experience in handling RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-6
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
SPECIAL PROJECT STAFF

Job Title: Inspector

Job Description:
An Inspector conducts inspections of RCRA-regulated waste and RCRA-regulated waste management Units at the Sandia National Laboratories/New Mexico. Inspector duties may include, but are not limited to:

- Inspecting at least daily areas subject to spills of RCRA-regulated wastes spills when these areas are in use;
- Inspecting at least weekly containers holding RCRA-regulated waste, container equipment, and secondary containment;
- Inspecting at least monthly emergency equipment, security devices, and structural equipment at RCRA-regulated waste management Units; and
- Recording inspection date, time, name, observations, and repairs in an inspection log (in the form of an inspection checklist).

Skill, Education, and Other Qualifications:
At a minimum, the qualification for an Inspector is:

- High school diploma or equivalent; or
- Two years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-7
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
INSPECTOR

Job Title: Transportation Manager

Job Description:
A Transportation Manager coordinates the shipment of RCRA-regulated waste from the Sandia National Laboratories/New Mexico. Transportation Manager duties may include, but are not limited to:

- Preparing and compiling documentation and paperwork (e.g., manifests and notices) for off-site shipments of RCRA-regulated waste;
- Ensuring proper packaging, labeling, marking, and placarding are in place for off-site shipments of RCRA-regulated waste; and
- Coordinating the loading of RCRA-regulated waste for off-site shipment.

Required Skill, Education, or Other Qualifications:
At a minimum, the qualification for a Transportation Manager is:

- High school diploma or equivalent; or
- Two years experience coordinating shipments of RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-8
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
TRANSPORTATION MANAGER

Job Title: Unit Operations Support Staff

Job Description:
A Unit Operations Support Staff member has unescorted access to the facility but performs no activities that require contact with RCRA-regulated waste or waste containers. Unit Operations Support Staff may include, but are not limited to:

- Administrative personnel;
- Information systems (database) personnel;
- Radiation support personnel; and
- Generator interface personnel.

Skill, Education, and Other Qualifications:
The Training Supervisor determines the requisite level of experience for each position.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-9
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
UNIT OPERATIONS SUPPORT STAFF

This page intentionally left blank.

APPENDIX E

SITE-WIDE CONTINGENCY PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-E-ii
LIST OF FIGURES ..... SW-E-iii
ACRONYMS AND ABBREVIATIONS ..... SW-E-iv
DEFINITIONS ..... SW-E-v
E.1 SNL/NM SITE DESCRIPTION SW-E-1
E.1.1 Unit Descriptions SW-E-1
E.1.2 Waste Description SW-E-1
E.1.3 Operating Schedule SW-E-3
E.2 CONTINGENCY PLAN DISTRIBUTION AND AMENDMENTS SW-E-3
E.3 EMERGENCY RESPONSE RESOURCES SW-E-4
E.3.1 Emergency Coordinator and Responsibilities SW-E-4
E.3.2 Emergency Response Groups SW-E-5
E.3.3 Emergency Chain of Command SW-E-5
E.3.4 Support Agreements and Coordination with Outside Agencies SW-E-5
E.4 EMERGENCY EQUIPMENT SW-E-6
E.5 CONTINGENCY PLAN IMPLEMENTATION SW-E-6
E.5.1 Emergencies SW-E-7
E.5.1.1 Fire SW-E-8
E.5.1.2 Explosion SW-E-10
E.5.1.3 Uncontrolled Release SW-E-11
E.5.2 Evacuation SW-E-12
E.5.3 Coordination with Off-Site Parties and Emergency Notification SW-E-13
E.6 POST-EMERGENCY ACTIONS SW-E-13
E.7 EMERGENCY RESPONSE RECORDS AND REPORTS SW-E-14

LIST OF TABLES

Table No.	Title
E-1	RCRA-Regulated Waste Management Units Included in Contingency Plan
E-2	Agreements and Memoranda of Understanding
E-3	Sandia National Laboratories/New Mexico (SNL/NM) Facility Emergency Equipment
E-4	Emergency Response System Notification, Sandia National Laboratories/New Mexico

LIST OF FIGURES

Figure No.	Title
E-1	Sandia National Laboratories/New Mexico, Technical Areas (TAs) Resource Conservation and Recovery Act-Regulated Waste Management Units

ACRONYMS AND ABBREVIATIONS

40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
DOE	U.S. Department of Energy
EC	Emergency Coordinator
EOC	Emergency Operations Center
ERO	Emergency Response Organization
IC	Incident Commander
ICS	Incident Command System
KAFB	Kirtland Air Force Base
NMED	New Mexico Environment Department
OKSO	Office of Kirtland Site Operations
RCRA	Resource Conservation and Recovery Act
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management unit

DEFINITIONS

Emergency: Any imminent or existing fire or explosion, or unplanned sudden or nonsudden release of Resource Conservation and Recovery Act (RCRA)-regulated hazardous waste or hazardous waste constituents to air, soil, or surface water that threatens human health or the environment. Examples of emergencies include but are not limited to:

- A release of RCRA-regulated waste release within the Unit that cannot be contained with secondary containment or application of absorbents.
- An imminent or existing fire or explosion involving RCRA-regulated waste.
- A structure fire, grass fire, or forest fire that threatens to ignite RCRA-regulated waste.

Facility: A facility is defined by 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], as all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of RCRA-regulated waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them). The U.S. Environmental Protection Agency Identification Number assigned to Sandia National Laboratories/New Mexico is NM5890110518.

Hazardous Waste: A waste that meets the definition of RCRA solid waste, is not exempt from regulation, and exhibits one or more of the characteristics described in 20 NMAC 4.1.200/40 CFR 261, Subpart C [6-14-0010-1-03], or is listed in 20 NMAC 4.1.200/40 CFR Part 261, Subpart D [6-14-0010-1-03].

Mixed Waste: Waste that contains both hazardous waste and radioactive materials (including source, special nuclear, or by-product material) subject to the Atomic Energy Act of 1954 *(42 United States Code 2011 et seq.)*.

Radioactive Waste: Solid, liquid, or gaseous waste that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended.

RCRA-Regulated Waste: For the purposes of this site-wide Contingency Plan and the Unit-specific Contingency Plans, a waste that meets the definition of either hazardous waste or mixed waste.

RCRA-Regulated Waste Management Unit (Unit): A specific operational area used for the treatment and/or storage of RCRA-regulated waste.

This page intentionally left blank.

SITE-WIDE CONTINGENCY PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This appendix presents site-wide contingency measures applicable to all Resource Conservation and Recovery Act (RCRA)–regulated waste management units (Unit) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE). Unit-specific Contingency Plan information is provided in Section 6.0 of each Unit-specific module. Together, information in the General Part B, in this appendix, and in each Unit-specific module meets the applicable regulatory requirements.

This Contingency Plan is intended to meet the requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V (20 NMAC 4.1.500), adopting by reference the Code of Federal Regulations, Title 40, Part 264 (40 CFR 264), Subpart D, revised ~~June 14, 2000~~October 1, 2003 [~~6-14-00~~10-1-03], "Contingency Plan and Emergency Procedures," and 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [~~6-14-00~~10-1-03], for hazardous~~RCRA-regulated~~ waste treatment, storage, or disposal facilities.

The provisions of this Contingency Plan will be carried out immediately to minimize hazards whenever there is an emergency, as required by 20 NMAC 4.1.500/40 CFR 264.51(b) [~~6-14-00~~ 10-1-03].

E.1 SNL/NM SITE DESCRIPTION

SNL/NM is a multidisciplinary laboratory engaged in research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others. SNL/NM falls under North American Industry Classification System Numbers 92811 (National Security) and 54171 (Research and Development in the Physical, Engineering, and Life Sciences).

SNL/NM is located on Kirtland Air Force Base (KAFB) immediately southeast of the Albuquerque city limits in Bernalillo County, New Mexico. SNL/NM occupies an area of approximately 2,842 acres (1,150 hectares) within the 80-square-mile KAFB. SNL/NM consists of five Technical Areas, I through V, and remote test areas situated in the eastern half of KAFB (Figure E-1).

E.1.1 Unit Descriptions

The Units subject to 20 NMAC 4.1.500/40 CFR 264, Subpart D [~~6-14-00~~10-1-03] and this Contingency Plan are listed in Table E-1. Additional detail about each Unit is provided in Section 6.0 of each Unit-specific module.

E.1.2 Waste Description

RCRA-regulated wastes at SNL/NM are generated primarily from laboratory research activities, process operations, and environmental restoration activities. Typical laboratory research waste includes bottles of excess or residual chemical mixtures and solutions, and solid laboratory items

Table E-1
RCRA – Regulated Waste Management Units Included in Contingency Plan

Name	Acronym	Location, size	Types of operations	Operating hours	Staff
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. Includes Buildings 958, 959. 1.35 acres	Storage, Repackaging	M-F 8:00 am 4:30 pm	Staffed during operating hours
Thermal Treatment Facility	TTF	Northern part of TA-III, south of Building 6715. 196 square feet	Treatment	M-F 7:00 am 5:00 pm	Staffed only during operations at Unit
Radioactive and Mixed Waste Management Facility/ Consolidated Waste Management Facility[a]	RMWMF/ CWMF	Southeast corner of TA-III. Includes Buildings 6920, 6921, 6925, and 6926. 3.11 acres	Storage, Treatment, Repackaging[a]	M-Th 7:00 am – 5:30 pm	Staffed during operating hours
Auxiliary Hot Cell Facility	AHCF	TA-V, Building 6597. 5578 square feet	Storage, Treatment, Repackaging	M-F 8:00 am – 4:30 pm	Staffed during operating hours
Manzano Storage Bunkers	MSB	In Manzano Area on KAFB. 0.4 acres occupied by 5 bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	M-Th 7:00 am – 5:30 pm	Staffed only during operations at Unit
Corrective Action Management Unit	CAMU	Southeast corner of TA-III. Includes containment cell located due north of RMWMF/CWMF.	Post-closure monitoring of containment cell.		Staffed only during monitoring operations at Unit.
Chemical Waste Landfill	CWL	Southeast corner of TA-III. Includes landfill located due east of RMWMF/CWMF.	Landfill undergoing closure.		Staffed only during closure and monitoring operations at Unit.

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

such as rags, batteries, and equipment. Typical process waste includes larger volumes (5- to 55-gallon containers) of solvents, oils, and corrosive solutions. Typical environmental restoration activity waste includes contaminated soil cuttings, debris, personal protective equipment, and decontamination fluids.

Because Sandia/DOE research and other activities are subject to change, waste streams and volumes stored at SNL/NM Units vary. The general types of wastes and capacities of each Unit are summarized in Section 6.0 of each module. The detailed description, location, and quantity of the RCRA-regulated wastes managed are identified in the Operating Record maintained for each Unit.

E.1.3 Operating Schedule

The operating schedules of the RCRA-regulated Units are summarized in Table E-1. Sandia/DOE security personnel check each Unit periodically during non-operating hours. If an emergency is discovered during these inspections, the SNL/NM Emergency Operations Center (EOC) and the Unit Emergency Coordinator (EC) (Section E.3.1) will be notified immediately.

E.2 CONTINGENCY PLAN DISTRIBUTION AND AMENDMENTS [20 NMAC 4.1.500/40 CFR 264.53-54]

Copies of the current site-wide Contingency Plan and the applicable Unit-specific information (Section 6.0 of each Unit-specific module) are maintained at the following locations: each Unit, the SNL/NM EOC, and SNL/NM Records Center. Sandia/DOE also provide copies of the Plan and any amendments and updates to the KAFB Fire Department and the New Mexico Environment Department (NMED) for their use.

This site-wide Contingency Plan and the Unit-specific information will be reviewed periodically by the EC(s) and Sandia emergency response organization (ERO) personnel. The plan(s) will be amended, if necessary, whenever one or more of the following occur:

- Applicable regulations or RCRA permit conditions are revised;
- There is a significant change in facility or Unit design, construction, maintenance, operation, or other circumstance that increases the potential for emergencies or changes the response necessary in an emergency;
- The list of designated emergency coordinators changes;
- The list of required emergency equipment changes significantly; or
- Actual implementation of the plan during an emergency demonstrates inadequacies.

E.3 EMERGENCY RESPONSE RESOURCES [20 NMAC 4.1.500/40 CFR 264.52(c) and 264.53]

Resources are available at each Unit, at SNL/NM, within KAFB, and in Albuquerque as described in this section.

E.3.1 Emergency Coordinator and Responsibilities [20 NMAC 4.1.500/40 CFR 264.52(d), 264.55, and 264.56(a)–(h)]

The Unit-specific EC has thorough familiarity with this Contingency Plan and the applicable Unit-specific information, Unit layout, operations, the location of records, the locations and characteristics of the RCRA-regulated waste managed at the Unit(s), and the emergency equipment and supplies. The EC has the authority through the Sandia department manager to commit the necessary Unit resources (including personnel, materials, and funds) to respond to an emergency at SNL/NM.

During emergencies at each Unit, or until the SNL/NM emergency response Incident Commander (IC) arrives (E.3.3), the EC has three primary responsibilities:

1. **Assess the Situation.** By observing the scene, interviewing personnel, and/or reviewing records, the EC must gather information relevant to the response, such as the type of event, quantity and type of released material, and actual or potential hazards to human health or the environment.

2. **Protect Personnel.** The EC should take any reasonable measures to ensure the safety of personnel, such as activating the fire alarm, accounting for Unit personnel, attending to injuries, or coordinating the evacuation of Unit personnel, if necessary. If evacuation is indicated for other personnel, the IC must be informed.

3. **Contain or Mitigate the Hazards.** The EC should take reasonable measures to ensure that fires, explosions, or releases do not occur, recur, or spread.

After emergencies, the EC must ensure that the facility and equipment are cleaned, waste is properly handled and disposed, the Unit is safe to resume operation, and all information necessary for notifications and reports is provided to Sandia/DOE personnel, as outlined in Sections E.6 and E.7.

In the event the EC is not on site or immediately available during an emergency, an alternate EC is contacted. The names, addresses, and phone numbers of the primary and alternate ECs for each SNL/NM Unit are included in each Unit-specific module. A Unit-specific EC or alternate EC is on site or immediately available during the operating hours of each Unit. ECs are also available during non-routine RCRA-regulated waste management operations that may be conducted outside normal operating hours.

E.3.2 Emergency Response Groups

The SNL/NM ~~Emergency Response Organization (~~ERO~~)~~ consists of two response groups that respond to an emergency situation: (1) a field response group led by an IC under the Incident Command System (ICS) and (2) an EOC cadre. The ICS also includes Sandia/DOE Security, the KAFB Fire Department, and Sandia/DOE personnel with relevant technical skills. An IC is on site at SNL/NM at all times (24 hours per day, 7 days per week). Sandia/DOE security and the KAFB Fire Department personnel are also available at all times. Sandia/DOE technical personnel are available on site at SNL/NM from 8:00 am – 4:30 pm Monday through Friday and are on call the rest of the time. The SNL/NM EOC staff includes an Emergency Director and a staff of Sandia and DOE personnel who are responsible for the management decisions and notifications to outside parties that are required during an emergency response (Section E.5.3). EOC staff personnel are available on site at SNL/NM from 8:00 am–4:30 pm, Monday through Friday, and are on call the rest of the time.

In the field, the IC maintains overall management and control of response operations at the emergency site. The IC works in a unified command with the KAFB Fire Department and in concert with safety personnel, Unit-specific personnel (e.g., EC), and other emergency responders to develop and execute response plans, including on-site protective actions and recommendations for off-site protective actions. The ICS system is implemented at the time an emergency occurs, is expanded to control the emergency as needs arise, and remains in effect until the need for emergency management no longer exists.

E.3.3 Emergency Chain of Command

When the EC is notified of an incident, he must first determine if procedures for emergencies (Section E.5) should be implemented. The EC manages the emergency response (Section E.3.1) until the IC arrives at the Unit and relinquishes control to the arriving IC. If possible, the EC maintains communication with the IC by telephone or radio before the IC arrives at the Unit. The EC remains at the Unit and assists in emergency response as directed by the IC. The EC advises the IC, as needed, on Unit operations, Unit layout, characteristics of RCRA-regulated waste on site, location of records, radio and cellular communication systems, and other information as necessary to respond to the emergency.

The SNL/NM IC is the liaison for communications with other emergency response organizations and functions, including medical and fire protection support. The EC can request both medical and fire protection services, if necessary, at the same time that he/she notifies the IC of the emergency.

E.3.4 Support Agreements and Coordination with Outside Agencies [20 NMAC 4.1.500/40 CFR 264.37]

Sandia/DOE maintain sufficient response resources to handle most emergencies arising from RCRA-regulated waste management activities as described in this contingency plan. These response resources include personnel, emergency equipment, medical facilities, and communications systems. DOE also has established mutual aid agreements and memoranda of understanding with several off-site agencies and facilities for additional response capabilities for SNL/NM. These agencies and facilities include:

Table E-2
Agreements and Memoranda of Understanding for Emergency Response

Agency or Facility	Type of Service
New Mexico Department of Public Safety	Mutual aid involving an actual or potential emergency, assistance in training and emergency response for local and tribal governments.
377th Air Base Wing, Kirtland Air Force Base	Various types of support, including fire protection, police services, communications, and utilities.
U.S. Forest Service	Cooperative fire fighting arrangement between the USFS and KAFB for wildland fires.
City of Albuquerque	Mutual support and responsibilities during a potential or actual emergency requiring the combined resources of DOE and the City of Albuquerque.
University of New Mexico Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
St. Joseph Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
Lovelace Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
Presbyterian Health Care Services	Mutual cooperation and assistance in providing timely and effective emergency medical services.

E.4 EMERGENCY EQUIPMENT [20 NMAC 4.1.500/40 CFR 264.32, 264.33, 264.34, and 264.52(e)]

A list of equipment available through the SNL/NM emergency response system is provided in Table E-3. Lists of emergency equipment available for use at each Unit are presented in each Unit-specific module.

E.5 CONTINGENCY PLAN IMPLEMENTATION [20 NMAC 4.1.500/40 CFR 264.56]

Unit personnel who become aware of an incident contact the EC immediately. If the incident is an emergency, personnel implement evacuation procedures identified in Section E.5.2 Personnel also immediately notify the Unit-specific EC or alternate EC of the emergency condition. The EC will then assess the situation and determine the scale of the incident.

If the EC determines that an emergency situation exists at the Unit, he will immediately notify the SNL/NM EOC and activate this Contingency Plan. The methods for contacting emergency response representatives are listed in Table E-4.

Table E-3
Sandia National Laboratories/New Mexico (SNL/NM) Facility[a] Emergency Equipment
2-18-2003

Item or Equipment	Description/Telephone
Emergency Vehicles (owned by Sandia/DOE unless noted)	
Emergency Response Vehicle	Mobile Command Post equipped with communications equipment, typically located at SNL/NM EOC[b]. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Ambulance	Typically located at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Security Vehicles	Vans and trucks equipped with communications equipment and utilized for transportation of personnel and equipment, typically located throughout SNL/NM. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Fire Trucks (owned by KAFB Fire Department)	Fire-fighting vehicles outfitted with equipment for fighting fires, typically located at KAFB fire stations. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Medical Supplies (owned by Sandia/DOE)	
Stretchers/Stokes Litter	Equipment for movement of injured personnel. Stokes litter will immobilize personnel so they may be moved vertically. Typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Blankets	Normal blankets, typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Medical Kits	Emergency first-aid supplies, typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Safety Supplies (owned by Sandia/DOE)	
Air Packs	Self-contained breathing apparatus for use by personnel entering hazardous atmospheres, typically located in ambulance or response vehicle. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Monitoring Instruments	Typically located in ambulance or emergency response vehicle. SNL/NM Emergency Response System — Call 911 or (505) 844-0911

[a] Lists of equipment available at each Unit are included in a table in each Unit-specific module.
[b] The SNL/NM EOC is located in TA-I.

Table E-4
Emergency Response System Notification, Sandia National Laboratories/New Mexico

Method	Number
Telephone (at Unit)	911
Mobile Telephone	(505) 844-0911
Portable Radio	NA
Automatic notification of emergency response when smoke detector or pull station is activated and/or water flows in sprinkler system	NA

Note: Any person in any Unit is authorized to implement the evacuation procedures, notify the EC or alternate EC, and/or contact the emergency response representatives in the unlikely event that the EC or alternate EC cannot be contacted or respond in a timely manner.

E.5.1 Emergencies

In the event of an emergency, the EC, an assignee, or Unit personnel (see note above) will immediately telephone the SNL/NM EOC (911 or 844-0911) or notify them in some other way (see Section E.5). Emergencies require the activation of this Contingency Plan and SNL/NM emergency response resources.

The EC will relinquish authority to the IC upon arrival as described in Section E.3.3. The EC and the IC will:

- Determine the extent of the emergency;
- Identify the character, source, amount, and areal extent of released materials by observation, records reviews, or chemical analysis;
- Assess possible resulting hazards to human health or the environment, considering both direct and indirect effects;
- Take all reasonable measures necessary to ensure fires, explosions, and releases do not occur, recur, or spread to other RCRA-regulated waste at the Unit, including collecting and containing released waste, and removing or isolating containers; and
- Monitor for leaks, pressure buildup, gas generation, and ruptures in equipment.

E.5.1.1 Fire

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing fire.

1. All non-essential Unit personnel should evacuate (Section E.5.2) following the evacuation routes in Section 6.0 of each Unit-specific module, ~~to an upwind point at least 100 yards~~

~~away from the fire~~, or to an alternate assembly location as directed by the EC. All Unit personnel may evacuate at this time.

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. ONLY if safe to do so, Unit personnel may consider taking action to put out the fire or minimize its spread. These actions may be taken only after the SNL/NM IC and KAFB Fire Department have been notified. Personnel must not jeopardize their own safety or the safety of other personnel.

   - If the fire is small and the fuel source is small, portable fire extinguishers may be used to put out the fire.

   - Fire extinguishers may only be used by personnel trained in their use and in this Contingency Plan, and only for very small fires.

   - Flammable materials should be removed from the area of fire if safe to do so.

   - Only ~~appropriate Lith-X~~ fire extinguishers and/or fire extinguishing agents are to be used for water-reactive waste (e.g., Met-L-X, Lith-X, or equivalent).

4. If the fire spreads or increases in intensity, all remaining personnel must evacuate (see Step 1).

5. The EC should remain near the site, but at a safe distance, so he can advise the personnel responding to the fire of the known hazards.

6. Upon arrival at a fire, the KAFB Fire Department officer-in-charge will be in command of fire fighting. He will accept and evaluate the advice of Sandia/DOE Unit and emergency response personnel, but he retains the responsibility to select the fire-fighting methods and tactics.

7. The IC will be in overall control of Sandia/DOE emergency response efforts until the emergency is terminated.

8. RCRA-regulated wastes involved in a fire can be identified in the following ways: The location of the container may indicate the contents. If the location does not indicate its contents, the label number can be used to identify the material. Records on the contents of each container can be accessed from outside the Unit or in the Unit office. If the label has been burned and the container cannot be identified, the material will be treated as an unknown and analyzed according to methods in the Waste Analysis Plan (Appendix B to the General Part B.)

9. Residues of RCRA-regulated wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled

material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

10. If needed, affected surfaces will be cleaned using cleaners appropriate to the chemicals.

11. If possible and safe to do so, responding personnel will take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, personnel will build dikes around storm drains.

12. Any fire-fighting waters collected in the stormwater catchment and retention ponds at the HWMF and RMWMF or the floor trenches at the AHCF will be analyzed to determine an appropriate disposal method.

E.5.1.2 Explosion

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing explosion.

1. Unit personnel will immediately evacuate the area (Section E.5.2).

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. The EC will remain near the site, but at a safe distance, so he can advise the response personnel of the known hazards involved and the degree and location of the explosion and associated fires.

4. Upon arrival at the site, the KAFB fire department officer-in-charge will be in command of fire fighting. He will accept and evaluate the advice of Sandia/DOE personnel and emergency response organization members, but he retains the responsibility to select the fire-fighting methods and tactics.

5. The IC will be in overall control of Sandia/DOE emergency response efforts until the emergency is terminated.

6. Residues of RCRA-regulated wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

7. If needed, affected surfaces will be cleaned using cleaners appropriate to the chemicals.

8. If possible, responding personnel will take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, personnel will build dikes around storm drains.

9. Any fire-fighting waters collected in the stormwater catchment and retention ponds at the HWMF and RMWMF or the floor trenches at the AHCF will be analyzed to determine an appropriate disposal method.

10. The EC will secure all operational units (e.g., process equipment, ventilation equipment) that may be affected directly or indirectly by the explosion once the areas needed to be entered have been determined safe by the IC or a safety officer.

E.5.1.3 Uncontrolled Release

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing release of RCRA-regulated waste or hazardous waste constituents.

1. Evacuate the immediate area (Section E.5.2).

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. Take actions to minimize, contain, and clean up the release only if safe to do so.

4. Review facility records (e.g., waste inventory database) to determine the identity and chemical nature of released material.

5. Don appropriate personal protective equipment for exposure to the material.

6. If possible, secure the source of the release.

7. If necessary and possible, build a dike to contain runoff.

8. Take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, build dikes around storm drains.

9. Released wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

10. No waste that may be incompatible with the released material will be treated, stored, or disposed of until cleanup procedures are complete.

11. After collection of a released material, the release site will be sampled and evaluated. If contamination is found to exist, contaminated materials may be collected, drummed (if appropriate), and removed from the site for disposal at a permitted disposal facility. Depending on the specific conditions, however, Sandia/DOE may choose to implement an alternative decontamination method such as surface cleaning or in situ neutralization or

stabilization. Any such alternative will be discussed with the NMED prior to implementation.

E.5.2 Evacuation [20 NMAC 4.1.500/40 CFR 264.52(f)]

During an emergency that threatens the health or safety of personnel within a Unit, the following steps will be taken as needed to facilitate safe, coordinated evacuation:

1. Stop work.
2. If safe to do so, close containers and shut down equipment or otherwise place it in a safe mode.
3. Alert personnel in the affected area by announcing the evacuation by voice command, “Evacuate the Area.”
4. Activate the available Unit-specific evacuation signal consistent with the internal communications and alarm systems that are listed in Section 6.0 of each Unit-specific module.
5. Notify the Sandia/DOE ERO by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.
6. Check to see whether there is evidence that the designated evacuation route is not safe.
7. If there is no evidence of danger or obstacles, exit the Unit according to the evacuation routes provided in Section 6.0 of the Unit-specific module.
8. If there is evidence of danger or obstacles, exit the Unit by any safe route available.
9. If safe to do so, check for other personnel in other areas of the Unit.
10. Proceed to the designated assembly area for roll call to be taken by the EC or designee.
11. If the EC and unit personnel are assembling at an alternate location, proceed to that location.
12. Inform the EC or designee about any other people still believed to be inside the Unit.
13. Do not reenter the Unit until the IC or EC determines that is safe to do so.

E.5.3 Coordination with Off-Site Parties and Emergency Notification [20 NMAC 4.1.500/40 CFR 264.56(a) and (b)]

The Sandia EOC notifies DOE of all emergencies at SNL/NM. Sandia/DOE will notify state and local agencies if state or local response resources are required (see Section E.3.4), if human health or the environment are threatened outside the SNL/NM facility, or if areas outside the SNL/NM facility may require protective action. Sandia/DOE will verbally notify the City of Albuquerque or Isleta Pueblo, respectively, as soon as possible in the unlikely event that residents of Albuquerque or Isleta Pueblo outside KAFB are or could be affected. The notification will include available information about the nature and location of the emergency, the materials involved, and the recommended protective actions. The most likely protective actions are expected to include evacuation or sheltering indoors with doors and windows closed and ventilation systems shut off.

In the event of an emergency involving injuries that require medical services from one of the hospitals listed in Table E-2, Sandia/DOE will provide all available information about the event and the materials involved to the responders as soon as possible.

Sandia/DOE will also notify the National Response Center (1-800-424-8802) if human health or the environment are threatened outside the facility. The notification will include the following:

- Name and telephone number
- Facility name and address
- Time and nature of emergency
- Type and quantities of materials involved to the extent known
- Personnel injuries, and
- Potential hazards to human health, or the environment, outside the facility.

Sandia/DOE will also provide this information to the NMED in accordance with regulatory requirements, including verbal notification (1-505-827-9329 or other emergency notification number designated by NMED).

E.6 POST-EMERGENCY ACTIONS [20 NMAC 4.1.500/40 CFR 264.56(f-i)]

Immediately after an emergency, the EC (and the IC, when present) will:

- Continue to monitor for leaks, pressure buildup, gas generation, and ruptures in valves, pipes, or other equipment if the Unit stops operations;

- Provide for properly treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material;

- Ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

- Ensure that all equipment used in responding to the emergency that is listed in either this site-wide plan or the Unit-specific Contingency Plan is cleaned and fit for its intended use before resuming operations.

Prior to resuming operations after an emergency involving RCRA-regulated waste in the affected area(s) of the Unit, Sandia/DOE will notify NMED that incompatible waste will not be managed until cleanup procedures are complete and equipment listed in the Unit-specific Contingency Plan is cleaned and fit for use.

E.7 EMERGENCY RESPONSE RECORDS AND REPORTS [20 NMAC 4.1.500/ 40 CFR 264.56(j)]

The time, date, and details of an emergency involving RCRA-regulated waste that require implementation of this Contingency Plan will be noted in the Operating Record maintained for the affected Unit. Within 15 days after the incident, a written report will be submitted to the NMED identifying:

- Name, address, and telephone number of the facility owner or operator
- Name, address, and telephone number of the facility
- Date, time, and type of incident (e.g., fire, explosion, release)
- Name and quantity of material(s) involved
- Extent of injuries (if any)
- Assessment of actual or potential hazards to human health or the environment, where applicable, and
- Estimated quantity and disposition of recovered material that resulted from the incident.

APPENDIX F

SITE-WIDE CLOSURE PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-F-ii
LIST OF FIGURES ..... SW-F-iii
ACRONYMS AND ABBREVIATIONS ..... SW-F-iv
F.1 INTRODUCTION SW-F-1
F.2 SITE DESCRIPTION SW-F-1
F.3 WASTE DESCRIPTION, MAXIMUM VOLUME STORED, AND INVENTORY ELIMINATION SW-F-2
F.4 CLOSURE PERFORMANCE STANDARDS SW-F-2
F.5 CLOSURE METHOD SW-F-3
F.5.1 Phase I: DQO Process and Closure Approach SW-F-5
F.5.2 Phase II: Removal, Decontamination, and Verification Procedures SW-F-8
F.5.2.1 Treatment Units SW-F-9
F.5.2.2 Container Storage Units SW-F-10
F.5.3 Phase III: Closure Certification SW-F-11
F.6 SAMPLING AND ANALYSIS PLAN SW-F-12
F.6.1 Sample Locations, Collection, Handling, and Quality Control SW-F-12
F.6.1.1 Sample Collection Documentation SW-F-12
F.6.1.2 Sample Identification SW-F-12
F.6.1.3 Sample Preservation, Handling, and Shipment Preparation SW-F-14
F.6.1.4 Quality Control Sampling SW-F-14
F.6.1.5 Analysis Request/Chain-of-Custody Form SW-F-14
F.6.1.6 Sampling Equipment Decontamination Procedures SW-F-15
F.6.1.7 Waste Management SW-F-15
F.6.2 Laboratory Analysis and Quality Control SW-F-15
F.6.3 Data Management and Reporting SW-F-15
F.7 CLOSURE SCHEDULE SW-F-16
F.8 CLOSURE PLAN AMENDMENT SW-F-17
F.9 FINANCIAL REQUIREMENTS SW-F-17
F.10 POST-CLOSURE CARE SW-F-17
F.11 SURVEY PLAT SW-F-17
REFERENCES SW-F-17

LIST OF TABLES

Table No.	Title
~~F-1~~	~~Facilities That May Receive RCRA-Regulated Wastes from Closure Activities at Sandia National Laboratories/New Mexico~~
F-2~~1~~	Sampling and Analysis Plan for Closure of Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units
F-3~~2~~	Closure Schedule for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units

LIST OF FIGURES

Figure No.	Title
F-1	Sandia National Laboratories/New Mexico, Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
ASTM	American Society for Testing and Materials
CWMF	Consolidated Waste Management Facility
DOE	U.S. Department of Energy
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
HWMF	Hazardous Waste Management Facility
NAAG	National Association of Attorneys General
NMED	New Mexico Environment Department
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
TSDF	treatment, storage, or disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

SITE-WIDE CLOSURE PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part ~~I~~1, Subpart IX (20 NMAC 4.1.900), ~~adopting by reference~~incorporating the Code of Federal Regulations, Title 40, Part 270, including Section 270.14(b)(13) (40 CFR 270.14[b][13]), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, revised ~~June 14, 2000~~ October 1, 2003 [10-1-03~~6-14-00~~], closure requirements for Resource Conservation and Recovery Act (RCRA)-regulated waste management units (Units) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), are provided in this site-wide ~~C~~closure ~~P~~plan and in Section 7.0 of each Unit-specific module. Together, information in the General Part B, in this appendix, and in each Unit-specific module meets the applicable regulatory requirements.

F.1 INTRODUCTION (20 NMAC 4.1.500/40 CFR 264.111 AND 264.112[b][2])

This site-wide ~~C~~closure ~~P~~plan was prepared in accordance with the applicable requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G, "Closure and Post-~~e~~Closure" [~~6-14-00~~10-1-03]. This ~~Closure P~~plan identifies the steps necessary for closure of individual RCRA-permitted storage and treatment Units at SNL/NM. Partial closure ~~of~~ at SNL/NM will consist of closing one or more of the SNL/NM Units, while leaving ~~the remainder of~~ the other Units in service. Partial closure will be deemed complete when equipment and structures have been decontaminated, as needed; ~~if necessary;~~ the Unit meets the performance ~~standards~~ criteria for "clean" closure; and closure certification has been submitted to the New Mexico Environment Department (NMED). Final closure will be complete when all ~~RCRA-regulated waste management~~ Units at the SNL/NM facility have been closed. Neither partial nor final closure ~~are~~ is expected to occur during the life of the permit.

Closure information applicable to all Units at SNL/NM (Figure F-1) and general sampling and analytical procedures to be used during closure activities are presented in this appendix. This ~~site-wide Closure P~~plan presents closure information that is applicable to all ~~RCRA-regulated waste management u~~Units at the site, while information regarding individual Units is provided in Section 7.0 of the appropriate Unit-specific module. Prior to closure of a Unit, the Unit-specific module will be revised, as needed (e.g., to provide updated Unit-specific sampling and analysis plans [SAPs], or to incorporate updated decontamination technologies), and submitted to NMED for approval.

F.2 SITE DESCRIPTION

SNL/NM (U.S. Environmental Protection Agency [EPA] Identification Number NM5890110518) is a multidisciplinary laboratory engaged in the research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE. Generation and management of RCRA-regulated wastes occur at SNL/NM as part of these activities. SNL/NM is located south of Albuquerque, New Mexico, within the boundaries of Kirtland Air Force Base in Bernalillo County. Descriptions of individual ~~RCRA-regulated waste management~~ Units are provided in Section 7.1 of each Unit-specific module.

F.3 WASTE DESCRIPTION, MAXIMUM VOLUME STORED, AND INVENTORY ELIMINATION (20 NMAC 4.1.500/40 CFR 264.112[B][3])

The types and quantities of RCRA-regulated waste~~s~~ ~~types and quantities~~ managed at the SNL/NM Units are highly variable and may include, but are not limited to, laboratory chemical waste, contaminated used oil, process waste, explosive waste, used batteries, unknown liquids and solids, elemental lead, contaminated soil, debris, decontamination/purge/treatment waters, and treatment residuals.

The maximum ~~RCRA-regulated waste~~ storage and/or treatment capacity for RCRA-regulated wastes at~~of~~ each SNL/NM Unit is provided in Section 7.2 of each Unit-specific module. This capacity corresponds to the maximum volume that can be present on site at any one time, and is the largest quantity of waste that would be addressed during closure activities.

The first step in ~~the~~ closure of a Unit will be ~~the~~ elimination (removal) of any waste inventory stored in the Unit. Prior to initiation of further closure activity, all RCRA-regulated wastes will be removed from the Unit and will be either transferred to ~~another~~ an active ~~RCRA-regulated waste management~~ Unit at SNL/NM or transported directly to an off-site permitted treatment, storage, or disposal facility (TSDF). Off-site TSDFs that might receive these wastes are listed in Table F-1.

Table F-1
Facilities That May Receive RCRA-Regulated Wastes from Closure Activities at Sandia National Laboratories/New Mexico

Name	Location	EPA ID Number
Rinchem Company, Inc	6133 Edith Blvd NE, Albuquerque NM 87107	NMD002208627
Ensco, Inc	309 American Circle, Eldorado AR 71730	ARD069748192
NSSI/ Sources and Services, Inc	5711 Etheridge St, Houston TX 77087	TXD982560294
Waste Control Specialists, LLC	9998 W. Highway 176, Andrews TX 79714	TXD988088464
Envirocare of Utah, Inc	Interstate 80, Exit 49, Clive UT 84101	UTD982598898
Permafix Environmental Services Inc	901 East Bodley, Memphis TN 38106	TND991279480

F.4 CLOSURE PERFORMANCE STANDARDS (20 NMAC 4.1.500/40 CFR 264.111)

Sandia/DOE plan to clean close all ~~storage and treatment~~ Units to meet the following closure performance standards in 20 NMAC 4.1.500/40 CFR 264.111 [~~6-14-00~~10-1-03]:~~. This Closure Plan applies only to the RCRA-permitted storage and treatment Units at SNL/NM.~~

~~This Closure Plan is designed to meet the following performance standards in 20 NMAC 4.1.500/40 CFR 264.111 [6-14-00]:~~

~~To protect human health and the environment;~~

- ~~To m~~Minimize the need for further maintenance~~.~~;

- ~~To c~~Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure ~~release~~ escape of RCRA-regulated waste, hazardous ~~RCRA-regulated~~ waste constituents, leachate, contaminated runoff, or hazardous~~RCRA-regulated~~ waste decomposition products to the ground or~~,~~ surface waters~~,~~ or to the atmosphere; and

- Comply with the applicable closure and post-closure requirements of 20 NMAC 4.1.500/ 40 CFR 264, Subparts G, ~~and~~ I, and X ~~through DD~~ [~~6-14-00~~10-1-03].

~~Numeric~~ The closure ~~performance standards~~ criteria that are applicable to individual Units and that will be used to demonstrate clean closure are presented in tables in Section 7.0 of each Unit-specific module.

F.5 CLOSURE METHOD (20 NMAC 4.1.500/40 CFR 264.112[b][1,2,4,5], 264.114, AND 264.115)

Sandia/DOE expect to demonstrate ~~conformance~~ compliance with the closure performance standards in 20 NMAC 4.1.500/40 CFR 264.111 through 264.115~~6~~ [~~6-14-00~~10-1-03], as applicable, for SNL/NM Units. Closure methods proposed in this plan are based on the following assumptions about conditions during the operational life of SNL/NM Units:

- RCRA-regulated wastes were stored in containers (e.g., drums);

- Containers used to store and/or treat RCRA-regulated wastes retained their integrity;

- Adequate secondary containment was provided for RCRA-regulated liquid wastes and liquid-bearing wastes;

- Appropriate spill cleanup and decontamination procedures were performed in response to releases, if any, of RCRA-regulated wastes at Units; ~~and~~

- Releases of RCRA-regulated waste and/or hazardous waste constituents to the environment did not occur~~.~~;

- Equipment used in waste treatment was maintained properly; and

- The Units were maintained in good condition.

These assumptions are derived from historical knowledge of waste management practices and policies, as well as applicable written records (e.g., inspection logs, survey results, waste inventory reports, facility/activity descriptions).

In order to demonstrate achievement of the closure performance standards listed in Section F.4~~3 of this appendix~~, Sandia/DOE propose to perform the following general closure activities:

- Phase I: ~~Initial sampling and analysis~~Data Quality Objective Process and Closure Approach.
  - The data quality objective (DQO) process will continue to be implemented to ensure that the type, quantity, and quality of information used in decision making are appropriate for the intended application.
  - ~~Initial sampling and analysis activities will be performed that are sufficient to detect contamination, if any, resulting from RCRA-regulated waste constituents known to have been released at a Unit.~~

~~Phase II: Performance of hazard surveys, if necessary.~~

- ~~A waste constituent contamination survey will be conducted to identify the nature and extent of contamination detected during Phase I sampling and analysis activities.~~
- ~~The nature and extent of contamination will be evaluated to determine closure options.~~

- Phase II~~I~~: ~~Decontamination, if necessary~~Closure Activities—Removal, Decontamination, and Verification Procedures.
  - Equipment will be evaluated to determine whether removal or decontamination would be more effective.
  - Loose material (e.g., soil), if present in waste management areas (WMAs), will be swept up and containerized.
  - Appropriate portions of each WMA (including equipment, if necessary) will be washed to remove waste residues.
  - Decontamination ~~of areas requiring remediation~~rinse water will be ~~performed~~collected, sampled, and analyzed to verify clean closure.
  - ~~Verification of "clean closure"~~Additional decontamination will be ~~conducted~~performed, if necessary, in any areas where analytical results indicate that residues of RCRA-regulated wastes ~~residues~~ remain at levels exceeding the ~~above acceptable~~ closure criteria ~~levels~~.
  - Solid wastes generated during closure activities will be characterized and managed appropriately.

- Phase IIIV: Certification of closure.
  - Closure will be certified by an independent, registered professional engineer.

Closure "phases" are fully described in Sections F.5.1–F.5.43. The site-wide sampling and analysis plan SAP is provided in Section F.6, and Unit-specific closure plans (which include SAPs) are included in Section 7.0 of each module. The Unit-specific sampling and analysis plans will be revised, as needed, and submitted to NMED for approval prior to closure of a given Unit, as described by the closure schedule referenced in Table F-2Section F.7.

F.5.1 Phase I: Initial Sampling and AnalysisDQO Process and Closure Approach

The purpose of Phase I activities is to determine whether or not RCRA-regulated waste constituent contamination requiring remediation (i.e., decontamination) is present at a Unit. The DQO process is designed to ensure that the type, quantity, and quality of environmental data used in decision making are appropriate for the intended application. DQOs are qualitative and quantitative statements derived from a series of seven planning steps based on the scientific method. DQO statements applied to Phase Idevelopment of this plan and the closure activities at SNL/NM Units are summarized below.

Define the Problem. The Unit to be closed is not no longer needed for RCRA-regulated waste management activities at SNL/NM and should be closed under applicable closure requirements. Regulatory RCRA closure must meet the performance standards found in 20 NMAC 4.1.500/ 40 CFR 264.111(a) and (b) [6-14-0010-1-03] (see Section F.4).

Identify the Decision. What are the appropriate closure criteria for the Unit, and will decontamination ofDoes the Unit meet the criteria applicable closure performance standards without further remediation? If the criteria are metso, closure certification will be submitted to the Secretary of the NMED. If not, the stated performance closure standards criteria will be met before closure certification.

Identify Inputs to the Decision. The inputs include the following:

- Information regarding constituents in the RCRA-regulated wastes stored and/or treated in the WMA.
- Evidence of incidents or activities that may have resulted in RCRA-regulated waste or constituent contamination of the WMA.
- Physical condition and features of the WMA (including equipment used for treatment activities) and visual evidence of contamination.
- Anticipated level of effort and likelihood of success in decontaminating equipment used for treatment activities.
- Results of decontamination activities undertaken during closure, including analytical data.

- Established concentrations of constituents of concern in the environment (e.g., correspondence from NMED [Robert S. Dinwiddie] to DOE [Michael Zamorski], dated September 24, 1997).

~~Applicable archival records on RCRA-regulated waste management activities will be reviewed. The records (e.g., inspection logs, survey results, waste inventory reports, facility/activity descriptions) will be reviewed for evidence of incidents or activities that may have resulted in RCRA-regulated waste or constituent contamination at the Unit. Visual observations of the Unit will be performed to identify stains or discoloration that may indicate contamination.~~

Define the ~~Study~~ Boundaries. The evaluation will be limited to information that is relevant to activities conducted in the WMA and the planned closure activities:

- Information obtained from review of applicable archival records of RCRA-regulated waste storage and treatment activities during the operating life of the WMA (e.g., inspection logs, operating record, and waste inventory reports).

- Features of equipment used in treatment areas (e.g., fume hoods), and requirements for removing or decontaminating the equipment.

- Using parameters relevant to the operating history of the WMA in characterizing equipment for proper management.

- Limiting Phase II decontamination activities to affected areas. The decontamination will be limited to the hardened surfaces present in the WMA (e.g., concrete floors). If decontamination of equipment is required, the decontamination effort will be limited to equipment directly associated with waste management. If decontamination of secondary containment surfaces is required, the decontamination effort will be limited to the bottoms and sides up to the secondary containment level.

- Samples collected during decontamination activities will be analyzed for parameters that are relevant to the operating history of the WMA to demonstrate clean closure and to characterize closure-generated wastes for proper management.

~~The records review is limited to RCRA-regulated waste management records generated during the operating life of the Unit as a RCRA-regulated waste management area. Visual observations are limited to surfaces in areas used for RCRA-regulated waste management activities. Initial samples will be collected from within the area used for RCRA-regulated waste management activities at the Unit to be closed. A Unit-specific sampling grid will be used to determine initial sample locations. If visible stains or discoloration are observed during visual inspections, biased sampling of those areas will also be performed during initial sampling activities. Analytical parameters addressed in Phase I sampling will be limited to RCRA-regulated waste or constituents known to have been released during operation of the Unit.~~

Develop the Decision Rule. The decision consists of two parts: 1) defining Unit-specific closure criteria to indicate when the closure performance standard has been achieved; and 2) determining whether the results of the closure activities satisfy the closure criteria.

To meet the first part, the information obtained from the records review will be used to select parameters to indicate the potential presence of waste constituents. The SAP in each Unit-specific closure plan describes the rationale for the indicator parameters currently selected for closure verification sampling.

If analytical results of indicator parameters in residues (e.g., sweepings) and decontamination rinse water do not show significantly elevated concentrations, the WMA will be considered to be clean closed, and the closure certification step may commence.

~~If, based on the records review, visual observations at the site, and initial sampling and analysis results, the Unit is not contaminated due to RCRA-regulated waste management activities, the Unit will be considered "clean." Phase II and III activities will not be conducted. Closure activities will advance to Phase IV. If, based on the records review, visual observations at the site, and/or initial sampling and analysis results, the Unit is contaminated due to RCRA-regulated waste management activities, Phase II activities will commence.~~

Specify Limits on Decision Errors. Because measurement data from sampling and analysis can only estimate true values, there is always a possibility that decisions made based on measurement data will be in error. Decision errors can be attributed to either sampling error (when incorrect sampling fails to adequately represent the true environment) or measurement errors (when the combinations of random and systematic errors in the measurement process inaccurately represent the true values). Precautions taken to minimize either type of decision error when performing ~~regulatory~~ RCRA closure of the Unit to be closed are discussed in the ~~sampling and analysis plan~~SAP included as Section F.6 of this ~~Closure P~~plan and in each Unit-specific plan.

Optimize Design. The results of the first steps will be evaluated and used in developing resource-effective strategies for sampling and analysis and for closure. The data will be used to determine if the closure activities were successful and the WMA meets the second part of the decision rule following removal or decontamination of equipment and decontamination of affected surfaces.

~~*Analytical Data Assessment*. Chemical analysis data (if any are generated) used to document attainment of the closure performance criteria for the Unit to be closed will be assessed using SNL/NM data verification and validation procedures or equivalent methods. Quality controls (QCs) for sampling and analysis will be implemented to ensure that measurement data collected meets the information objectives for this investigation. QC will be implemented by adhering to the sampling procedures described in the approved sampling and analysis plan; documenting sampling activities and sample custody; using controlled and standard equipment and materials; and collecting, analyzing, and evaluating field and laboratory QC samples.~~

~~F.5.2 Phase II: Hazard Surveys~~

~~Phase II activities will be conducted only if contamination is identified during Phase I activities. Phase I activities are sufficient to detect the presence of contamination, if any, by RCRA-regulated waste or constituents known to have been released at a Unit. During Phase I, samples will be collected from locations established using a sample grid or equivalent, and from visibly stained or discolored spots. If, based on Phase I initial sampling results, an area is contaminated, additional Phase II samples may be collected to identify the nature and extent of contamination at a Unit.~~

Samples will be collected at intervals specified in each Unit-specific sampling and analysis plan until the lateral extent of surface contamination is defined. Phase II sampling will be done in accordance with the procedures outlined in Section F.6. Alternatively, Sandia may proceed to Phase III and decontaminate the entire sample grid section(s) surrounding the location(s) of the Phase I sample that indicated the presence of contaminants.

F.5.23 Phase III: Removal, Decontamination, and Verification Procedures

Sandia/DOE will evaluate the features of equipment used in treatment areas at those Units where treatment is conducted. Smaller pieces of equipment, parts of larger pieces, or equipment with porous or textured surfaces will be evaluated to determine whether removal is the most effective option. Removed items will be characterized to determine if they are RCRA-regulated wastes, in accordance with the applicable requirements of 20 NMAC 4.1.200/40 CFR 261.

Decontamination will be performed only if contamination requiring remediation is found during Phase I and/or Phase II hazard surveys. Otherwise, Phase III will not be conductedas described below. All sampling conducted during decontamination will be done in accordance with sampling procedures in Section F.6 of this appendixplan.

Appropriate remedial actions will be determined and undertaken after Phase I and II contamination investigations have been conducted. To the extent possible, all contaminated structures, surfaces, and equipment (if presentappropriate) at a Unit will be decontaminated. The following general principles apply to decontamination and verification of all RCRA-regulated Units at SNL/NM:

- If Phase III decontamination activities are performed, confirmatoryVerification samples will be collected to verify achievementdemonstrate that the applicable of closure performance standardscriteria are met. The confirmatory decontamination verification samples will be collected at intervalsas specified in a Unit-specific closure plan sampling and analysis planSAP. until the lateral extent of surface contamination is defined. Secondary containment surfaces will be inspected for cracks or gaps prior to decontamination to identify potential biased sampling locations to confirm that closure performance standards have been met.

- Only those areas (e.g., floor grids) that do not meet closure criteria (based on results from rinse water sampling) will require further decontamination and verification sampling.

- Before transport off site or use elsewhere on site, all equipment used for closure will be decontaminated via scraping and rinsing with high pressure water, steam, or other appropriate industrial cleaning solution until no visible evidence of contamination is present. Equipment decontamination may be performed in a specific decontamination staging area with adequate containment.

- Used wash water and rinse water may be discharged into the City of Albuquerque sewer treatment system, provided the results of sampling and analysis meet the criteria of the discharge permit.

- Most personal protective equipment, plastic sheeting, and sampling equipment used by personnel performing decontamination activities will be disposable. These materials will be placed in containers and ~~managed~~ characterized to determine if they are RCRA-regulated wastes, in accordance with all applicable requirements of 20 NMAC 4.1.2~~3~~00/40 CFR 261~~2.34~~ [~~6-14-00~~10-1-03]~~, pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF~~.

- Any ~~residues, rinsate, or~~ RCRA-regulated wastes generated during closure (e.g., equipment, contaminated floor sweepings) ~~decontamination activities, or equipment that cannot be successfully decontaminated~~ will be ~~handled~~ managed in accordance with all applicable requirements of 20 NMAC 4.1.300/40 CFR 262.34 [~~6-14-00~~10-1-03], pending arrangements for transfer to an active SNL/NM Unit or an off-site permitted TSDF.

- Sandia/DOE may propose improved decontamination technologies or an alternative demonstration of decontamination at the time of closure. This information would be submitted to NMED prior to implementation of closure in ~~an updated~~a revised Unit-specific ~~C~~closure ~~P~~plan.

- Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

The following sections describe decontamination procedures applicable to specific types of ~~waste management~~ Units.

F.5~~.3~~.2.1 ~~Waste~~ Treatment Units

The closure processes described below~~above~~ are appropriate for indoor storage areas and for indoor areas at Units where treatment in containers occurs (i.e., the ~~Radioactive and Mixed~~Consolidated Waste Management Facility and the Auxiliary Hot Cell Facility). The closure processes described ~~above~~ below are also appropriate for the Thermal Treatment Facility (TTF) treatment equipment. Closure activities (if needed) for areas immediately surrounding the TTF treatment equipment are addressed in the ~~sampling and analysis plan~~SAP in Section 7.5 of Module II.

Many of the closure processes appropriate for floor surfaces in storage and treatment areas are also appropriate for large pieces of equipment (e.g., fume hoods). The processes for equipment decontamination are described in the following section. Alternatively, Sandia/DOE may choose to manage treatment equipment (e.g., exhaust ductwork from fume hoods in treatment areas) as solid waste.

F.5.2.23.1 Container Storage Units

The decontamination procedures described below are designed to satisfy closure performance standards by describing the steps taken to remove or decontaminate all RCRA-regulated waste residues and contaminated containment system components, equipment, and structures during closure. Soil and groundwater are not expected to be impacted by operations at container storage Units, as the Units are located inside buildings for protection from the weather, are equipped with impermeable secondary containment systems, and have beenare regularly inspected and maintained.

The decontamination techniques described below apply to hardened surfaces present in container storage Units (e.g., such as asphalt, concrete, sheet plastic, and metal). These surfaces may include the floors, walls, secondary containment structures, and miscellaneous equipment. Not all the steps will be required for each surface; some steps are contingent on the outcome of prior steps. The procedures described below are intended to allow structures and equipment in the container storage Units to be returned to service in the management of non-RCRA regulated materials, and. These procedures may be revised before closure to incorporate new practices or technology.

- Remove gross residual material (e.g., soil from floors) using brooms, mechanical sweepers, or similar equipment.

- Collect a composite grab sample of the floor sweepings to be analyzed for the indicator parameters identified in Unit-specific SAPs.

- Inspect all surfaces for cracks or gaps prior to decontamination.

- Formulate a wash solution of water and non-phosphate detergent for decontamination. Prior to use, collect a grab sample of the wash solution to be analyzed for the indicator parameters identified in Unit-specific SAPs.

- Wash appropriate hardened surface areas (e.g., floors, secondary containment, non-disposable equipment) with the non-phosphate detergent solution. Large areas to be washed will be cleaned according to grids established in Unit-specific SAPs. Washing may be done with mops/sponges or with pressure washers, depending on the degree of contamination or other conditions at the time of closure.

- Use portable berms or other containment structures (e.g., enclosed areas covered with polyethylene sheeting) to contain and collect decontamination wash and rinse waters.

- Vacuum surface using a wet/dry vacuum equipped with a high-efficiency particulate air filter.

- Inspect surface and identify any stained areas for further cleanup.

- Small areas may be cleaned by hand using a solution of water and a surfactant (e.g., Alcojet™ washing detergent or equivalent) until all visible material is removed.

- For larger areas or those with stains that cannot be removed by hand cleaning, wash surface with a high pressure, low volume water spray using a surfactant (e.g., Alcojet™ washing detergent or equivalent) until all visible material is removed.

- Collect used wash water using appropriate means and sample for final disposition analytes (see Section 7.0 of appropriate Unit-specific module for required sample analytes).

- Allow surfaces to air dry.

- Conduct a walk-through visual inspection of all decontaminated surfaces.

- Repeat surface wash and wash/rinse water collection procedures until all visible signs of contamination have been removed. Visible contamination that cannot be removed by washing will be removed by scraping or chipping using appropriate tools and equipment.

- Verify the absence of visible contamination using a site inspection logbook or memo entries and visual documentation (e.g., videotaping, photographing).

- Collect two grab samples of decontamination wash and rinse water from each decontaminated area or item for analysis of the indicator parameters (as identified in the Unit-specific SAP).

Wastes generated during closure of a Unit will be characterized and containerized, and the containers will be appropriately labeled. Containers of RCRA-regulated waste will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

F.5.43 Phase IIIV: Closure Certification

An independent, registered professional engineer will verify certify that closure activities followed the approved plan. Upon completion of closure, a letter certifying that the Unit was closed according to the approved plan will be prepared. The letter will be dated and signed by the engineer and will be stamped by the engineer with his or her professional seal. The original copy will be submitted to the Secretary of the NMED.

Upon completion of the closure activities, Sandia/DOE will submit closure information to the Secretary of the NMED. This information will include:

- Certification of closure.
- Location and custodian of all closure documentation.
- Discussion of closure activities, and
- Laboratory analyses/results summaries.

Additional information will be available, upon request, in the documentation supporting the independent, registered professional engineer's certification in accordance with 20 NMAC 4.1.500/40 CFR 264.115 [6-14-0010-1-03]. The supporting documentation will include:

- Discussion of closure activities
- Laboratory analyses/results summaries
- Original laboratory data package(s), and
- Quality assurance (QA)/quality control (QC) documentation for contract laboratory analyses.

F.6 SAMPLING AND ANALYSIS PLAN (20 NMAC 4.1.500/40 CFR 264.112[b][4,5])

Sampling and analysis activities will be performed to determine the presence and extent of contaminants (Phases I and II) or to verify decontamination and demonstrate clean closure (Phase II) and for waste characterization purposes, as necessary (e.g., certain closure-generated wastes). Sample collection will be performed in accordance with established sampling procedures (e.g., EPA, American Society for Testing and Materials [ASTM]) or equivalent methods so that samples are representative of the Unit conditions at closure. Sample collection equipment and techniques are generally described in this site-wide Cclosure Pplan, and sampling methods/types are summarized in (Table F-12), , and Unit-specific Sampling and Analysis Plansclosure SAPs are provided in Section 7.5 of the appropriateeach Unit-specific module.

F.6.1 Sample Locations, Collection, and Handling, and Quality Control

Typical sampling locations are described in Sections F.5.2 and F.5.3. Unit-specific samples and locations are identified in Section 7.5.2.1 of the appropriateeach Unit-specific module. Sample collection methods may include wipe sampling, chipping, coring, or drilling, as appropriate. Representative samples of clean and used decontamination wash water and used decontamination rinse water will also be collected using appropriate equipment. Sample collection methods may include grid sampling, chipping, coring, or drilling, as appropriate.

Samples will be collected, stored, and preserved in accordance with established and applicable procedures (e.g., EPA, ASTM). Samples will be analyzed for indicator compounds parameters that have been selected to represent the RCRA-regulated wastes and hazardous waste constituents known to have been managed during the operational life of the Unit.

F.6.1.1 Sample Collection Documentation

Sample collection will be documented for each sample following QA/QC information established by EPA guidelines or equivalent methods.

F.6.1.2 Sample Identification

Each sample container will be labeled or marked with appropriate QA/QC information and laboratory analysis established by EPA guidelines or equivalent methods. Additional information is included in Section 7.5.2.6 of each Unit-specific module. Each sample will be assigned a unique identifying number, as described in the Unit-specific SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample labels will include the following information:

Table F-~~1~~2
Sampling and Analysis Plan for Closure of Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units

Activity	Sampling Method/Type	Parameters of Interest[a]	Sample Number/ Frequency
Operations and site reviews	1) Visual observation 2) Review of ~~RCRA-regulated waste management u~~Unit documentation/records	1) Staining, discoloration 2) (Identify) hazardous waste~~RCRA-regulated~~ indicator ~~compounds~~parameters	1) Not applicable 2) Not applicable
Decontamination of equipment	Liquid sampling	Hazardous waste indicator parameters	1 clean wash water, 2 used wash water, and 2 used rinse water per sampling area location[b]
Decontamination of ~~Wall/~~floor/secondary containment surface ~~sampling~~	~~Filter wipe~~1) Floor sweepings (soil) sampling 2) Liquid sampling	1) Physical state 2) Hazardous waste~~RCRA-regulated~~ indicator ~~compounds~~parameters	1 soil sample per ~~area of discrete staining/discoloration~~WMA; ~~and~~ 1 clean wash water, 2 used wash water, and 2 used rinse water per sampling grid location[b]
Characterization of contaminated equipment	1) Review of Unit documentation/records 2) Acceptable knowledge 3) Wipe or bulk sampling, as appropriate	Hazardous waste characteristics	As appropriate
Characterization of decontamination equipment[c~~b~~] (e.g., personal protective equipment, plastic sheeting, dry wipes, and tools)	~~Filter wipe~~ 1) Liquid sampling 2) Acceptable knowledge	1) Physical state 2) Hazardous waste~~RCRA-regulated~~ indicator ~~compounds~~parameters	As appropriate
Quality control sampling	Equipment r~~R~~insate blanks~~, trip blanks,~~ and duplicate samples	1) Physical state 2) Hazardous waste~~RCRA-regulated~~ indicator ~~compounds~~parameters	1 per day per piece of non-disposable sampling equipment[c~~d~~], ~~1 per sample shipment[d]~~, 1 per every ~~10~~ 20 clean and used wash water and used rinse water samples.[e]

[a] Samples will be analyzed for indicator ~~compounds~~ parameters that have been selected to represent the RCRA-regulated waste and hazardous waste constituents known to have been managed during the operational life of the Unit. See Section 7.5 of the appropriate Unit-specific module.

[b] See the appropriate Unit-specific module for sampling areas and grids.

[c~~b~~] Decontamination equipment wastes will be characterized using the results of decontamination sampling and analysis (~~i.~~e.g., used wash water, ~~wipe sampling~~used rinse water, floor sweepings, as appropriate) or acceptable knowledge.

[c~~d~~] Applicable to equipment rinsate blanks.

[d] ~~Applicable to trip blanks.~~

[e] Applicable to duplicate samples.

- Name of sampler,
- Date and time of sample collection,
- Sample number,
- Sample matrix and how collected (i.e., grab composite),
- Preservation method, and
- Analysis required.

F.6.1.3 Sample Preservation, Handling, and Shipment Preparation

Sample preservation and handling will be in accordance with applicable QA requirements. Proper container, preservative, and holding time requirements for each parameter will follow EPA guidelines or equivalent methods. Sample shipment will be in accordance with U.S. Department of Transportation and International Air Transport Association shipping requirements, as applicable. Additional information is included in Section 7.5.2~~.7~~ of each Unit-specific module.

F.6.1.4 Quality Control Sampling

The quality of data from ~~initial and confirmatory~~ sampling efforts will be controlled by using blank and duplicate samples. Blanks and duplicate samples will be collected so that the extent of any contamination introduced during sample collection and handling and the precision of the total sample collection and laboratory analysis system can be determined. Sampling equipment rinsate blanks will be collected at a frequency of one per day for each piece of non-disposable sampling equipment to determine if ~~samples have been~~ cross contaminat~~ioned by sampling equipment~~ion has occurred. ~~One trip blank will accompany each sample shipment submitted for analysis to determine if volatile contaminants are introduced during shipment.~~ One in every ~~ten~~ twenty clean and used wash water and used rinse water samples collected will be submitted in duplicate for analysis and determination of precision. The blanks and duplicate samples will be treated as separate samples. Objectives for acceptable QC sample analytical results will follow available EPA guidance or equivalent methods. Unit-specific QC sampling is described in Section 7.5.4 of the appropriate Unit-specific module.

F.6.1.5 Analysis Request/Chain-of-Custody Form

In order to document the integrity of samples from collection to analysis, sample possession will be recorded on an analysis request/chain-of-custody form, which will be prepared for samples collected for laboratory analyses. A sample is in custody if it is:

- In someone's physical possession or view, and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel.

~~This~~ The form will include the same information as the label, will~~is to~~ be initiated at the point of sample collection, and will be kept with the samples during transfer to the laboratory. The form will be completed upon receipt in the laboratory. Specific analysis request/chain-of-custody procedures will follow available EPA guidance or equivalent methods.

F.6.1.6 Sampling Equipment Decontamination Procedures

To minimize the potential for cross contamination between samples, ~~dry decontamination procedures~~disposable sampling equipment may be used. If reusable sampling equipment is used, it will be decontaminated as described in Section 7.5.2.4 of each Unit-specific module.

F.6.1.7 Waste Management

Minimal quantities of waste will be generated through the sampling procedures. The waste will primarily be miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media, sample container packaging, and label adhesive backing. All RCRA-regulated wastes generated during sampling activities will be managed as described in Section F.5.2.

F.6.2 Laboratory Analysis and Quality Control

Samples will be analyzed for indicator ~~compounds~~ parameters that have been selected to represent the RCRA-regulated waste and hazardous waste constituents known to have been managed during the operational life of the Unit. See Section 7.5 of the appropriate Unit-specific module for additional information. Analytical procedures will conform to "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1986 and all approved updates), or other appropriate established methods.

The analytical laboratory will have a written QA plan and standard operating procedures in place to ensure sample preparation and analysis are performed properly and results are of the appropriate and documented quality to ensure that project-specific DQOs are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of closure samples. The laboratory will perform the following QC checks with each batch of samples at a minimum frequency of five percent:

- Matrix duplicate: Split aliquots of a sample are fortified with identical concentrations of target analytes and analyzed. The results are used to document the precision and bias of a method in the sample matrix.
- Matrix spike: An aliquot of sample is fortified with known concentrations of target analytes, the sample is prepared and analyzed, and the results are compared to the results of a split, non-fortified sample to determine and document the bias of the matrix on the analytical method.

F.6.3 Data Management and Reporting

Initial data reduction and validation will be done by the laboratory contracted to analyze the samples. The laboratory will report the data in accordance with their internal QC requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. QC acceptance criteria for bias and precision will be included in the analytical report.

Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records will include instrument tuning and calibration records, batch QC sample data, sample tracking and control documentation, raw analytical sample data, and analytical results.

F.7 CLOSURE SCHEDULE (20 NMAC 4.1.500/40 CFR 264.112[b][6], 264.112[d], AND 264.113)

The schedule for completion of closure activities is shown in Table F-~~2~~3. Closure is expected to take ~~more than~~ 180 days. If unforeseen circumstances that impact this schedule arise during closure, a ~~C~~closure ~~P~~plan modification will be requested in accordance with 20 NMAC 4.1.500/ 40 CFR 264.113(b)(1)(i) [~~6-14-00~~10-1-03].

Table F-~~2~~3
Closure Schedule for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Activity[a]	Schedule[b]
Submit updated Unit-specific closure plan (Section 7.0 of appropriate Unit-specific module), if necessary	Prior to closure notification
Receive NMED approval of updated Unit-specific closure plan	Prior to closure notification
Notify ~~the New Mexico Environment Department (~~NMED~~)~~ of closure	Day 0 minus 45
Begin closure activities	Day 0
Begin records review and site observations	Day 1
~~Conduct sampling and analysis~~Develop closure criteria ~~(Phase I)~~	Day 60~~90~~
~~Conduct hazard surveys (if necessary)~~	~~Day 150~~
Conduct removal and decontamination activities~~, if necessary~~ ~~(Phase II)~~	Day 1~~5~~00 ~~(210 if hazard surveys required)~~
Verify decontamination~~, if necessary~~ through sampling and analysis	Day 1~~4~~75 ~~(235 if hazard surveys required)~~
Complete final closure	Day ~~215~~ 180 ~~(275 if hazard surveys required)~~
Submit closure certification to NMED	60 days later

[a] Some activities may be accomplished concurrently with others.

[b] This schedule represents estimated completion time; some activities may be completed earlier than scheduled. Also, the schedule assumes that updated Unit-specific closure plans will be approved by NMED prior to notification of closure by ~~SNL/NM~~Sandia/DOE.

F.8 CLOSURE PLAN AMENDMENT (20 NMAC 4.1.500/40 CFR 264.112[c])

This site-wide ~~C~~closure ~~P~~plan will be amended if any changes occur in the operating plans or Unit design that affect the plan, such as Unit size or capacity, types of RCRA-regulated waste in the Unit at closure, maximum waste inventory, or the closure schedule. The plan will be amended if, during closure, unexpected events require the plan to be modified. Additionally, the plan will be amended if there are changes in technical considerations such as availability of new technology, changes in requirements, or operating contingencies.

This ~~site-wide Closure P~~plan is intended to provide general closure policies and procedures applicable to all ~~RCRA-regulated waste management~~ Units at the SNL/NM facility. It is expected that revisions to the Unit-specific modules made prior to closure will address all necessary information, without requiring amendments to this ~~site-wide Closure P~~plan.

If this ~~Closure P~~plan requires amendment(s), Sandia/DOE will request authorization from the NMED in writing, in accordance with 20 NMAC 4.1.500/40 CFR 264.112(c) [~~6-14-00~~10-1-03].

F.9 FINANCIAL REQUIREMENTS (20 NMAC 4.1.500/40 CFR 264.140[c])

Cost estimates, financial assurance mechanisms, and liability coverage for closure and post-closure activities are not included in this site-wide closure plan. Federal facilities are exempt from these requirements, in accordance with 20 NMAC 4.1.500/40 CFR 264.140(c) [~~6-14-00~~10-1-03].

F.10 POST-CLOSURE CARE (20 NMAC 4.1.500/40 CFR 264.117 THROUGH 264.120)

Sandia/DOE plan to clean close all operating RCRA-regulated waste management Units at the SNL/NM facility. Because all RCRA-regulated waste will be removed from the Units and the Units will be decontaminated~~, if necessary,~~ at closure, a general post-closure care plan is not required. Potential post-closure care activities at the TTF are addressed in Module II.

F.11 SURVEY PLAT [20 NMAC 4.1.500/40 CFR 264.116]

Sandia/DOE plan to clean close all Units at SNL/NM. Because all RCRA-regulated waste will be removed from the Units and the Units will be decontaminated~~, if necessary,~~ at closure, a survey plat is not required.

REFERENCES

DOE, see U.S. Department of Energy

EPA, see U.S. Environmental Protection Agency.

NAAG, see National Association of Attorneys General

NMED, see New Mexico Environment Department.

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

New Mexico Environment Department, 1997, Letter from NMED (Robert S. Dinwiddie) to DOE (Michael Zamorski), entitled "Request for Supplemental Information: Background Concentrations Report, SNL/KAFB," dated September 24, 1997.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C.

Sandia National Laboratories/New Mexico
Hazardous Waste Management Facility
Part B Permit Renewal Request

Module I

Revision 4~~3~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... HWMF-iii
LIST OF FIGURES ..... HWMF-iv
ACRONYMS AND ABBREVIATIONS ..... HWMF-v
1.0 GENERAL UNIT OPERATIONS HWMF-2
1.1 Designated Waste Management Areas HWMF-2
1.1.1 Hazardous Waste Packaging Building (Building 959) HWMF-2
1.1.2 Hazardous Waste Storage Building (Building 958) HWMF-3
1.1.3 Modular Storage Buildings (958B and 958C) HWMF-4
1.2 Unit Operations HWMF-5
1.2.1 Operation of Containment Systems HWMF-5
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes HWMF-5
1.2.3 Preparedness and Prevention HWMF-6
1.2.3.1 Required Equipment HWMF-6
1.2.3.2 Testing and Maintenance of Equipment HWMF-7
1.2.3.3 Access to Communications or Alarm Systems HWMF-7
1.2.4 Hazards Prevention HWMF-7
1.2.4.1 Preventing Hazards in Unloading HWMF-7
1.2.4.2 Preventing Runoff or Flooding HWMF-8
1.2.4.3 Preventing Contamination of Water Supplies HWMF-8
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages HWMF-8
1.2.4.5 Preventing Undue Exposure HWMF-8
1.2.4.6 Preventing Releases to the Atmosphere HWMF-9
1.3 Container Storage Practices HWMF-9
1.3.1 Container Types and Labeling HWMF-10
1.3.2 Container Handling HWMF-10
1.3.2.1 Condition of Containers HWMF-10
1.3.2.2 Aisle Space and Storage Configuration HWMF-10
1.3.2.3 Compatibility of Waste with Containers HWMF-10
1.3.2.4 Presence of Liquids in Containers HWMF-11
2.0 UNIT DESCRIPTION and information HWMF-12
2.1 Security Procedures and Equipment HWMF-12
2.1.1 Barriers and Means to Control Entry HWMF-12
2.1.2 Warning Signs HWMF-13
2.2 Traffic Pattern, Volume, and Controls HWMF-13
2.2.1 Traffic Patterns HWMF-13
2.2.2 Traffic Volumes HWMF-13
2.2.3 Traffic Control Signals HWMF-13
2.3 Unit Location Information HWMF-14
2.3.1 Seismic Standard HWMF-14
2.3.2 Floodplain Standard HWMF-14
2.4 Topographic Maps HWMF-14
2.5 Groundwater Monitoring HWMF-15
3.0 WASTE ANALYSIS PLAN HWMF-16

TABLE OF CONTENTS (Concluded)

4.0 INSPECTION PLAN HWMF-17
5.0 PERSONNEL TRAINING HWMF-20
6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE HWMF-21
7.0 CLOSURE PLAN HWMF-27
7.1 Unit Description HWMF-27
7.2 Estimate of Maximum Waste in Storage HWMF-28
7.3 Closure Conditions HWMF-28
7.4 Closure Activities and Schedule HWMF-29
7.4.1 Closure Activities HWMF-29
7.4.2 Closure Schedule HWMF-29
7.5 Sampling and Analysis Plan HWMF-29
7.5.1 Sampling and Analysis Scope HWMF-30
7.5.2 Sampling Methodology HWMF-31
7.5.2.1 Sample Locations HWMF-31
7.5.2.2 Sample Collection HWMF-33
7.5.2.3 Sampling Equipment HWMF-34
7.5.2.4 Sample Equipment Decontamination HWMF-35
7.5.2.5 Sample Identification HWMF-36
7.5.2.6 Sample Preservation and Holding Time HWMF-36
7.5.3 Demonstration of Clean Closure HWMF-36
7.5.4 Quality Control HWMF-37
7.5.5 Data Management and Reporting HWMF-38
7.6 Decontamination and Verification Procedures HWMF-38
8.0 TREATMENT PLAN HWMF-39
9.0 REFERENCES HWMF-40

LIST OF TABLES

Table No.	Title
1	Secondary Containment Capacity for Building 958
2	Fire Suppression Systems at the Hazardous Waste Management Facility
3	Hazardous Waste Management Facility Inspection Criteria and Frequency
4	Hazardous Waste Management Facility, Emergency Equipment and Locations
5	Hazardous Waste Management Facility, Emergency Coordinator List
6	Hazardous Waste Management Facility, Summary of Random Sampling Program
7	Hazardous Waste Management Facility, Example Random Sample Locations

LIST OF FIGURES

Figure No.	Title
1	Location of the Hazardous Waste Management Facility at Sandia National Laboratories/New Mexico
2	Hazardous Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
3	Hazardous Waste Packaging Building (Building 959), Floor Plan
4	Hazardous Waste Storage Building (Building 958), Floor Plan
5	Hazardous Waste Management Facility, Traffic Routes and Controls
6	Topographic Map, Hazardous Waste Management Facility
7	Hazardous Waste Management Facility, Access Control Features
8	Hazardous Waste Management Facility, Drainage Control Features
9	Hazardous Waste Management Facility, Evacuation Routes
10	Hazardous Waste Management Facility, Emergency Response and Access Information
11	Hazardous Waste Storage Building (Building 958), Closure~~Random Sampling~~ Grids
12	Hazardous Waste Packaging Building (Building 959), Closure~~Random Sampling~~ Grids
13	Modular Storage Buildings (Buildings 958B, 958C), Closure~~Random Sampling~~ Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
ft	foot/feet
ft^2	square foot/feet
HWMF	Hazardous Waste Management Facility
HSWA	Hazardous and Solid Waste Amendments
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	Solid Waste Management Unit
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO HAZARDOUS WASTE MANAGEMENT FACILITY PART B PERMIT RENEWAL REQUEST

This Sandia National Laboratories/New Mexico (SNL/NM) Hazardous Waste Management Facility (HWMF) Part B Permit Renewal Request is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised June 14, 2000October 1, 2003 [6-14-0010-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage operations at the HWMF. 20 NMAC 4.1.500 and .900, adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application" hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the SNL/NM General Part B, and in the appendices to the General Part B meet the applicable requirements for the HWMF that are specified in 20 NMAC 4.1.500/40 CFR 264 [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270 [6-14-0010-1-03].

Sandia/DOE also prepared the "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 75.0" (SNL/NM, 20043), hereinafter referred to as the SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this HWMF Part B Permit Renewal Request.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Hazardous Waste Management Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The HWMF occupies 1.35 acres on DOE property between TA-I and TA-II. It is a fenced compound with several buildings and waste management areas (WMAs). Operations include storage of RCRA-regulated wastes in containers and repackaging the wastes into suitable containers for shipment to off-site treatment and/or disposal facilities. Sandia/DOE currently operate the HWMF in accordance with the terms of NMED Permit NM5890110518-1, issued August 6, 1992 (NMED, 1992), and its subsequent modifications. Sandia/DOE manage all of the wastes listed in the Part A included in Permit NM5890110518-1.

All of the RCRA-regulated wastes listed in the General Part A may be managed at the HWMF upon issuance of the permit that is the subject of this Part B renewal request.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the HWMF WMAs and specific Unit waste management operations. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes: containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the General Part B, address the applicable hazardous RCRA-regulated waste management facility requirements of 20 NMAC 4.1.500/ 40 CFR 264, Subparts I, AA, BB, and CC [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [6-14-0010-1-03].

1.1 Designated Waste Management Areas

The location of the HWMF at SNL/NM is shown on Figure 1. The HWMF has three designated WMAs, shown on Figure 2:

- The Hazardous Waste Packaging Building (Building 959),
- The Hazardous Waste Storage Building (Building 958), and
- Two modular storage buildings.

The following sections provide descriptions of the storage structure, location, capacity, and secondary containment of each WMA.

1.1.1 Hazardous Waste Packaging Building (Building 959)

In the Hazardous Waste Packaging Building, lab packs are prepared by placing small containers into larger containers filled with absorbent material, and other wastes are repackaged into containers for shipment to off-site treatment, storage, and disposal facilities (TSDFs).

The Hazardous Waste Packaging Building is the easternmost WMA at the HWMF and is an 1,800-square-foot (ft^2) precast concrete building with an eave height of 12 feet (ft) (Figures 2 and 3). Eight waste-holding cells with half-height concrete masonry unit walls and a waste packaging area are located in the building. The packaging area contains a fume hood and flexible ventilation hoses attached to a local negative-pressure ventilation system that exhausts to the exterior of the building.

All the cells and the packaging area have recessed floors that are constructed of reinforced concrete and are covered with metal grating. Waste containers are placed on shelves over the metal grating over the recessed secondary containment areas. The load-bearing capacities of the metal grating and the reinforced concrete floor are 450 and 2,000 pounds per ft^2,

respectively. The entire floor of the building and the bottom seven inches of wall surface in each recessed area are covered with an epoxy-based chemical-resistant coating. The coating forms a continuous protective barrier over the concrete and protects the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

The individual shelves are covered with removable chemical-resistant grating, and they have edges to hold the containers in place. The shelves are not designed to provide secondary containment. Secondary containment is provided by the recessed areas in each holding cell. The recessed area in each holding cell is 5 feet by 4.5 feet and 7 inches deep, with a capacity of 98 gallons. The recessed area under the packaging area is 5 feet by 12 feet and 7 inches deep, with a capacity of 261 gallons. For each of these recessed areas, Sandia/DOE consider only part of the available capacity: the capacity used in each holding cell is 71 gallons, and the capacity used under the packaging area is 191188 gallons.

Based on the secondary containment capacity used by Sandia/DOE (10% of the stored volume or the volume of the largest container), each of the eight holding cells in the Hazardous Waste Packaging Building can hold a maximum of 13 55-gallon drums, or an equivalent volume. The packaging area can hold a maximum of 34 55-gallon drums, or an equivalent volume. The stacking configuration of waste containers will not exceed the load-bearing capacity of the reinforced concrete or metal grating. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.1.2 Hazardous Waste Storage Building (Building 958)

The Hazardous Waste Storage Building (Building 958) is located west of the Hazardous Waste Packaging Building (Figure 2). The Hazardous Waste Storage Building is a 3,250-ft^2 precast concrete building with an eave height of 14 ft. In the Hazardous Waste Storage Building, eight separate and recessed waste storage compartments for segregation of waste groups are contained in the building (Figure 4). The floors of Cells 1, 2, 3, 4, 6, 7, and 8 are constructed of reinforced concrete and metal grating. The floor of Cell 5 is constructed of reinforced concrete. The entire floor (all cells and walkway) is coated with an epoxy-based chemical-resistant coating. The coating protects the concrete from the effects of solvents and corrosive chemicals that could be released on the floor in the event of a spill. Waste containers are placed on metal grating over the secondary containment area, or on pallets on the reinforced concrete floor in Cell 5. The load-bearing capacity of the metal grating and reinforced concrete are 450 and 2,000 pounds per ft^2, respectively. The storage compartments vary in size, secondary-containment capacity, and waste-container capacity.

The secondary containment in Bays 1, 2, 3, 4, 6, 7, and 8 is provided by the recessed areas under the grating. The secondary containment capacity in Bay 5 is provided by the volume of the entire recessed area. For example, the recessed area in Bay 1 is 11.75 feet by 14.67 feet by 5 inches deep, with a capacity of 542 gallons. The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus, the storage capacity in Bay 1 is 5420 gallons, 98 55-gallon drums, or an equivalent volume. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

Based on the secondary containment capacity, the storage compartments are limited to the following maximum storage capacity of 55-gallon drums, or equivalent volume, as listed in Table 1.

Table 1
Secondary Containment Capacity for Building 958

Bay No.	Secondary Containment Capacity, Gallons	Maximum Number of 55-Gallon Drums Stored[a]
1	542	98
2	434	79
3	434	79
4	434	79
5	4,136	518[ab]
6	434	79
7	434	79
8	434	79

[a] Actual limit will be various containers with total volume equivalent to stated number of 55-gallon drums

[ba] A portion of the secondary containment capacity is taken up by pallets, and the aisle area is not included in the calculations.

The stacking configuration of waste containers will not exceed the load-bearing capacity of the reinforced concrete floor or the metal grating.

1.1.3 Modular Storage Buildings (958B and 958C)

The modular storage buildings are located west of Building 958 (Figure 2) and are used for storage of spontaneously ignitable and reactive wastes, including, but not limited to, lithium batteries, gas cylinders, and flammable solids.

The exterior dimensions of each modular storage building are 22 ft long, 8 ft wide, and 8 ft high. The buildings are constructed of welded 10- and 12-gauge steel supported by structural steel sections. Each building has three doors, each with a three-point locking system to provide access and security. Each has a 6-inch-deep integral spill containment reservoir under the entire building; the containment capacity is 500 gallons. The secondary-containment subfloor is constructed of continuously welded 10-gauge steel, which is epoxy-coated to resist chemical attack; the coating is compatible with reactive wastes. The floors are 1-inch-thick epoxy-coated, fire resistant plywood. The load-bearing capacity of the floor for each structure is 250 pounds per square foot. The inside walls and ceiling are also coated with chemical-resistant epoxy. Each building rests on structural supports that elevate it and allow visual checksinspections of the underside of the spill containment reservoir if there is evidence of deterioration on the interior surfaces. The secondary containment capacity is 10% of the stored volume or the contents of the largest container; thus, the storage capacity is 5000 gal. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.2 Unit Operations

The HWMF WMAs are used to store any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the General Part A.

Information regarding operations requiring a permit at ~~of~~ all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Unit personnel begin taking action to evaluate and remove accumulated liquids in each secondary containment area in the HWMF upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

Containers are inspected for integrity when the wastes arrive at the HWMF, before they are placed on the shelves in the holding cells in Building 959. Containers in poor condition are not placed on the shelves; the containers may be overpacked or the RCRA-regulated wastes may be transferred to containers in good condition, as described in Section 1.2.2.1 of the General Part B. ~~The shelves have edges to hold the containers in place.~~ The shelves are typically lined with absorbent pads under removable grating~~to protect containers from damage, but they are not used to provide additional secondary containment~~. Containers are placed on the grating on the shelves, and are inspected regularly as noted in Section 4.0 of this module and in Appendix C of the General Part B. Released materials are contained in the absorbent pads and are cleaned up as described in Section 1.1.1 of the General Part B. These practices serve to protect the containers on the shelves from contact with liquids.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[c] and [d]; 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the HWMF. Sources of ignition that may be present at the HWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. The general precautions and practices employed by Unit personnel are described in Section 1.1.2 of the General Part B. Additional HWMF-specific features, potential ignition and reaction sources, precautions, and practices include:

- The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. They are equipped with a dry chemical fire suppression system to assure that water-reactive wastes will not be exposed to water during fire emergencies.

- Building 959 is used for open container operations (e.g., bulking, sampling) that may involve ignitable or reactive wastes. It is equipped with an intrinsically safe (spark proof) electrical system, including lighting and receptacles.

- Spontaneously i~~I~~gnitable and water-reactive wastes are segregated from other wastes and stored in the modular storage buildings. The modular storage buildings have exterior signs indicating the presence of ignitable~~/flammable~~ and reactive wastes.

- Spontaneously i~~I~~gnitable and water-reactive wastes may temporarily be managed in Building 959 after receipt and during repackaging activities. Individual containers are labeled as described in Section 1.2.1 of the General Part B, and they are kept apart from other wastes.

- Containers of wastes (including ignitables and reactives) are labeled and segregated in different holding cells in Building 959 according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. Each cell is marked with a sign noting the hazard class(es) of wastes inside. Containers in Building 958 (including ignitables and reactives) are labeled. They are segregated into different bays according to general DOT hazard classes in 49 CFR 172 and 20 NMAC4.1.500/40 CFR 264 Appendix V as appropriate. Each bay is marked with a sign noting the hazard class(es) of wastes inside. The holding cells and bays are separated from each other by concrete walls and independent containment systems.

- Forklifts are not used for waste movement in Building 959 to minimize potential sources of ignition in the building.

- Unit personnel use the process described in Section 1.1.2 to ground containers during transfer of flammable liquids between containers.

- Wastes are mixed together on a very limited basis during the repackaging operations at the Unit. Ignitable and reactive wastes are only mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., NIOSH Pocket Guide to Chemical Hazards or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarms systems at the HWMF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

General information about fire hydrants at each Unit is provided in Section 1.1.3.1 of the General Part B. The fire hydrant at the HWMF is shown in Figure 10.

The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. All buildings at the HWMF are equipped with automatic fire suppression systems, which are summarized in Table 2.

Table 2
Fire Suppression Systems at the Hazardous Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
959	13, 30	Special	Automatic sprinkler, wet pipe	GB/FS
958	13, 30	Special	Automatic sprinkler, dry pipe	GB/FS
958B	17	N/A	Dry chemical	
958C	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb or fusible solder type, typically designed to open at temperatures of 155ºF or higher.

Information on other required equipment located at the HWMF is provided in Section 6.0 and Table 4 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the HWMF is provided in Section 1.1.3.2 and in Appendix C of the General Part B, and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the HWMF is provided in Section 1.1.3.3 of the ~~SNL/NM~~ General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the HWMF to prevent hazards. Additional information applicable to the HWMF and all other Units at SNL/NM is included in Section 1.1.4 of the ~~SNL/NM~~ General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

HWMF personnel employ the practices described in Section 1.1.4.1 of the ~~SNL/NM~~ General Part B to prevent hazards in unloading. Loading and unloading activities typically take place on

the south side of buildings 958 and 959 (Figure 7). The surface is level, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Containers are typically shrink-wrapped to hold them together on a pallet before being loaded onto vehicles by a forklift for off-site shipment. Containers are typically transported within the Unit with drum dollies or pallet jacks.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land around the HWMF is generally level, sloping gently toward the south and west. The paved areas of the HWMF are higher than the surrounding land on all sides, preventing sheet-flow run-on of surface water from surrounding areas. The western edge of the paved area is also surrounded by a 6-inch high asphalt curb, further preventing runon and runoff from HWMF WMAs.

Within the HWMF, the paved areas are sloped toward a 74,800-gallon catchment pond located at the northwest corner of the Unit. During normal operations, the catchment pond collects only storm water. The catchment pond does not provide secondary containment for RCRA-regulated waste.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that ~~RCRA-regulated waste~~ management ~~activities~~ of RCRA-regulated wastes at the HWMF will affect water supplies, as described in Section 1.1.4.3 of the General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. The HWMF is equipped with battery-operated lights that will automatically turn on in the event of a power failure. A permanent power transformer can provide emergency power from the SNL/NM emergency power network.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

HWMF personnel employ the practices described in Section 1.1.4.5 of the ~~SNL/NM~~ General Part B to prevent undue exposure. In addition, a fume hood and flexible ventilation hoses~~drum vacuum hoods~~ are available in Building 959 and can be used if there is a need to open a container of vapor-generating RCRA-regulated waste to sample the waste or transfer it to another container.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

HWMF personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere during storage.

Subpart AA

HWMF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [6-14-0010-1-03]. HWMF repackaging operations sometimes involve a pump used in light organic service. It is used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-00 10-1-03]. The equipment list will be noted in the HWMF records, and equipment use will also be noted in the records.

Subpart CC

HWMF personnel employ the practices described in Section 1.1.4.6 of the SNL/NM General Part B to prevent releases to the atmosphere in accordance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the Unit.

Section B.5.3 in Appendix B of the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR, Subpart I)

The HWMF is permitted for container storage of RCRA-regulated wastes in accordance with the conditions of “Sandia National Laboratories/New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-1” (NMED, 1992). Container storage practices applicable to the HWMF are presented in the following sections.

1.3.1 Container Types and Labeling

HWMF personnel use the containers types and labeling practices described in Section 1.2.1 of the SNL/NM General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

HWMF personnel employ the container handling practices described in Section 1.2.2 of the SNL/NM General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the HWMF is maintained as indicated in Section 1.2.2.1 of the SNL/NM General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

HWMF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the SNL/NM General Part B. Aisle width is typically 2.5 feet in all buildings. This is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked in Building 958 are stored on pallets, and are not stacked more than two pallets high. Smaller containers may be stacked on a single pallet. Box-shaped containers may be stacked two high without pallets. Containers may also be stored directly on the grating or on pallets on the floor.

In Building 959, containers are stored in the holding cells: smaller containers are stored on the shelves, and larger containers are stored directly on the grating. Containers are typically not stacked in Building 959; however, containers on the floor grating may be stacked two high.

Fifty-five-gallon drums stored in the modular buildings (Buildings 958B and 958C) are not stacked. Smaller containers may be stacked.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

HWMF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the SNL/NM General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

All container storage areas at the HWMF are equipped with secondary containment. Therefore, Unit personnel do not verify whether containers contain free liquids before storage.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270) [6-14-0010-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-0010-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Section 2.0 and Appendix A of the SNL/NM General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the HWMF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The HWMF is located on DOE property between TA-I and TA-II (Figure 1). The Unit is surrounded by an 8-ft high chain-link fence topped with barbed wire. A single entrance gate is located on the east side of the HWMF. The gate is locked during non-operational hours. An emergency exit gate is located on the west side of the Unit, as shown in Figures 6 and 7. This gate is locked at all times and can only be opened from the inside by pressing on the handle. All buildings are also kept locked during non-operational hours. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the HWMF gates during non-operational hours.

During work hours, Unit signs instruct personnel and visitors to report to Office Trailer #1 for site entry privileges and instructions. Resident personnel have Sandia-issued badges. Nonresidents are escorted while on site. These procedures limit access to the HWMF RCRA-regulated WMAs, in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [6-14-0010-1-03].

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fences surrounding the HWMF and the entrance to the HWMF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the HWMF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the HWMF include Hardin Boulevard (formerly O Street), Pennsylvania Avenue, Wyoming Boulevard, Eubank Boulevard, and 9th, 14th, and P Streets as shown in Figures A-4 and A-5 in Appendix A of the SNL/NM General Part B.

Waste transport vehicles enter the HWMF from 14th Street (Figure 5). Within the HWMF, waste is transported on paved surfaces.

2.2.2 Traffic Volumes

Traffic volumes on Hardin Boulevard, Wyoming Boulevard, and Eubank Boulevard are generally light to moderate; traffic volumes on Pennsylvania Avenue and 9th, 14th, and P Streets are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Approximately 10 to 30 vehicles per week travel into and out of the HWMF. These include flatbed trucks and trailers carrying supplies, RCRA-regulated wastes from initial generators, and RCRA-regulated wastes to off-site TSDFs.

2.2.3 Traffic Control Signals

Traffic on the access road is controlled by a stop sign at each end of the road: one at the intersection with 14th Street, and a stop sign and speed limit sign posted on the fence adjacent to the HWMF vehicle entrance gate (Figure 5). The speed limit within the HWMF fenced area is

5 miles per hour and no private vehicles are allowed inside the HWMF. Vehicle presence within the fenced HWMF is limited to work and waste transport vehicles (i.e., no personal vehicles). Therefore, signals or signs are not necessary to control traffic within the HWMF fenced area.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11] [i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the HWMF are not located within 3,000 ft of any fault with Holocene displacements (see Section A.4.2 in Appendix A of the ~~SNL/NM~~ General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the HWMF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [~~6-14-00~~10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [~~6-14-00~~10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the ~~SNL/NM~~ General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [~~6-14-00~~ 10-1-03]).

- Surface waters, including intermittent streams, near the HWMF are shown on Figure A-2 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [~~6-14-00~~10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [~~6-14-00~~10-1-03]). The area surrounding the HWMF is occupied by other Sandia-controlled operations (industrial land use). As noted in Appendix A, the nearest residential areas are located west of Pennsylvania Avenue, north of Hardin Blvd (west of SNL/NM TA-I), more than one mile away from the HWMF.

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [~~6-14-00~~ 10-1-03]).

- Legal boundaries of SNL/NM (including the HWMF) are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [6-14-0010-1-03]).

- Access control features at the HWMF (e.g., fences, gates) are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [6-14-0010-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the HWMF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [6-14-00 10-1-03]).

- The location of the HWMF and associated WMAs and structures, loading and unloading areas, roads, and sanitary sewers are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][x] [6-14-0010-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [6-14-0010-1-03]).

- Locations of the HWMF and HWMF WMAs are shown on Figures 1, 2, and 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [6-14-0010-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the HWMF. As provided for in 20 NMAC 4.1.900/ 40 CFR 270.14(b)(19) [6-14-0010-1-03], SNL/NM has submitted the maps to NMED at these scales and contour intervals due to the size of the HWMF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The HWMF is not a regulated Unit. There have been no releases of RCRA-regulated waste in the past, nor is the HWMF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, "General Waste Analysis" [6-14-0010-1-03], waste analysis requirements applicable to all Units, including the HWMF, are addressed in Appendix B of the SNL/NM General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [6-14-0010-1-03] require that waste management areas (WMAs) and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardousRCRA-regulated waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to RCRA-regulated waste management activitiesof RCRA-regulated wastes to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. HWMF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 3, which includes the inspection criteria and frequency. The items listed in the table are inspected in each HWMF WMA.

Automatic fire suppression systems are included in Table 3. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based onin accordance with the requirements of NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" (NFPA, 2002), as described in Section 1.1.3.2 of the General Part B.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained at the HWMF. Inspection records for previous calendar years are maintained at the HWMF or the SNL/NM Records Center.

Table 3
Hazardous Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 4 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash / safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, and in good condition	Monthly
Self-contained breathing apparatus	Present and in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT **Buildings 958, 959, 958B, and 958C**		
Building / storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Shelves (Building 959 only)	Clean, in good condition, no accumulated leaks or spills	Daily when and where wastes are handled. Weekly otherwise.
Secondary containment	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.

Table 3 (Concluded)
Hazardous Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont) **Buildings 958, 959, 958B, and 958C**		
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Waste transfer pump	Present, operational, and in good condition	Prior to use. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous~~RCRA-regulated~~ waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
~~STORED~~ CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [6-14-0010-1-03] "Personnel Training."

The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the HWMF.

HWMF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the General Part B.

Training records for HWMF personnel are maintained at the HWMF.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the SNL/NM General Part B. Supplemental HWMF-specific information is included in this section, in Figures 9 and 10, and in Tables 4 and 5 of this module. Current copies of the sSite-wWide cContingency pPlan and this supplemental information are maintained at the HWMF and at the SNL/NM Emergency Operations Center.

The HWMF is located at the curve of 14th and P Streets (approximately 1,000 feet (ft) north of the entrance to Technical Area II) at SNL/NM. The Unit is used to repackage and store RCRA-regulated wastes. The RCRA-regulated WMAs at the HWMF include Building 958, Building 959, and the two modular storage buildings. The HWMF WMAs are located within a single area surrounded by a fence. All of the wastes listed in the General Part A may be stored at the HWMF.

- Building 959 is an 1,800-square-foot precast concrete building with an eave height of 12 feet. Inside the building are eight waste holding cells, a repackaging area, a restroom, a general use area, an office area, and an area for packing materials. The floor is coated with an epoxy finish. Small containers of wastes (typically less than 55 gallons) are stored in this building. Containers of incompatible wastes are segregated into different holding cells. The containers and contents are repackaged into other containers for shipment to off-site facilities. Up to 7,590 gallons of waste may be stored in this building.

- Building 958 (west of Building 959) is a 3,520-square-foot precast concrete building with an eave height of 14 feet. The building includes eight separate and recessed waste storage compartments for segregation of waste groups according to compatibility. Containers of wastes are stored in this building. Up to 59,950 gallons of waste may be stored in this building.

- Buildings 958B and 958C are modular, relocatable, prefabricated safety storage structures used for the storage of reactive and ignitable wastes. Each structure is constructed of welded 10- and 12-gauge steel with supporting structural steel sections, and each has three doors. The 500-gallon containment reservoirs within each building, the walls, and the ceilings are coated with chemical-resistant epoxy. The reservoirs are lined with polypropylene, which is compatible with reactive wastes. The floors are epoxy-coated, fire-resistant plywood. Up to 5,000 gallons of waste may be stored in each building.

- Storage of reactive wastes, lithium batteries, gas cylinders and flammable solids is restricted to these two buildings except for temporary storage that may occur in Building 959 following acceptance of the waste at the HWMF.

Figure 9 presents the evacuation routes for the HWMF. Figure 10 presents emergency response and access information for the HWMF. Table 4 lists the emergency equipment typically available at the HWMF. Table 5 lists the emergency coordinators for the HWMF.

Current copies of the sSite-wWide cContingency pPlan (Appendix E of the General Ppart B) and this supplemental information are maintained at the HWMF and at the SNL/NM Emergency Operations Center.

Table 4
Hazardous Waste Management Facility, Emergency Equipment and Locations

Building 958

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower / eyewash	Near south entrance
	Recovery drums and containers	At south entrance
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	At south entrance
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the HWMF
	SCBA	At south entrance
	Miscellaneous personal protective equipment (protective suits, goggles and/or safety glasses, gloves)	At south entrance
Internal Communication and Alarm System	Voice command	
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One each on the exterior and interior walls near north and south personnel doors
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	One on the interior walls near the north and south entrances
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One each on the exterior and interior walls near north and south personnel doors
Fire Extinguishers	Portable (A-B-C)	One at both the north and south entrances
Fire Suppression	Automatic wet-pipe water sprinkler system, with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	One hydrant, location shown in Figure 10

Table 4 (Continued)
Hazardous Waste Management Facility, Emergency Equipment and Locations

Building 959

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower/eyewash	Near south entrance
	Recovery drums and containers	Near south entrance
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Near south entrance
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the HWMF
	SCBA	Near south entrance
	Miscellaneous personal protective equipment (protective suits, goggles and/or safety glasses, gloves)	Near south entrance
	First aid kit	One in the bathroom
Internal Communication and Alarm System	Voice command	
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers).	One each on the exterior and interior walls near each personnel door
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	One in the office
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers).	One each on the exterior and interior walls near each personnel door
Fire Extinguishers	Portable (A-B-C)	One at both the north and south entrances
	Lith-X	One in the general use area One in the office
Fire Suppression	Automatic wet-pipe water sprinkler system, heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	One hydrant, location shown in Figure 10

Table 4 (Concluded)
Hazardous Waste Management Facility, Emergency Equipment and Locations

Modular Storage Buildings (958B and 958C)

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Personal protective equipment Recovery drums and containers Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present) and spill cleanup items	Buildings 958 and 959, equipment storage at the HWMF
Internal Communication and Alarm System	Voice command	
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system).	Buildings 958 and 959
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	Buildings 958 and 959
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 958 and 959
Fire Suppression	Ansul automatic dry chemical system	Coverage throughout the building

KAFB Kirtland Air Force Base.
SCBA Self-contained breathing apparatus.

Table 5
Hazardous Waste Management Facility, Emergency Coordinator List

November 29, 2004~~12, 2003~~

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Lorenz (Richie) Spangler Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-1181 (office) (505) 264-2106 (cellular) (505) 530-2022 (pager)	(505) 898-5225
First Alternate	Brett Cummins Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 844-1346(office) (505) 238-3662(cellular) (505) 540-5362 (pager)	(505) 275-1131
Second Alternate	David Castillo Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-4192 (office) (505) 540-9375 (pager)	(505) 899-1956

One or more of these personnel are routinely available during operating hours (8:00 am to 4:30 pm, Monday through Friday)

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, [6-14-0010-1-03]. General closure information applicable to all RCRA-regulated Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site- Wide Closure Plan" in Appendix F of the SNL/NM General Part B. The site-wide Closure pPlan includes a description of the SNL/NM facility,; waste descriptions,; closure performance standards,; general closure methods,; a sampling and analysis plan (SAP), a general closure schedule,; procedures for amendment of the Closure pPlan,; closure certification and reportletter,; and survey plat, and post-closure requirements. Unit-specific information for closure of the HWMF is included in this section.

7.1 Unit Description

The Hazardous Waste Management Facility (HWMF) is located at the curve of 14th and P Streets (approximately 1,000 feet (ft) north of the entrance to Technical Area II) at SNL/NM and is used to repackage and store RCRA-regulated wastes. The RCRA-regulated WMAs at the HWMF include Building 958 (Figure 12), Building 959 (Figure 11), and the two modular storage buildings (Buildings 958B and 958C, Figure 13). The HWMF WMAs are located within a single area surrounded by a fence.

- Building 959 is an 1,800-square-foot precast concrete building that contains with an eave height of 12 feet. Inside the building are eight separate and recessed waste holding cells and , a repackaging area, a restroom, a general use area, an office area, and an area for packing materials. The floor is coated with an epoxy finish. Small containers of wastes (typically less than 55 gallons) are stored in this building. Containers of incompatible wastes are segregated into different holding cells. The repackaging area includes a fume hood and local negative-pressure ventilation systems for use when opening containers of vapor-producing wastes to repackage them.containers and contents are repackaged into other containers for shipment to off-site facilities

- Building 958 (west of Building 959) is a 3,520-square-foot precast concrete building that with an eave height of 14 feet. The building includes eight separate and recessed waste storage compartments for segregation of waste groups according to compatibility groups. The floor is covered with a chemical-resistant epoxy finish. Containers of wastes are stored in this building.

- Buildings 958B and 958C are modularrelocatable, prefabricated safety storage structures used for container the storage of reactive and ignitable wastes. Each structure is constructed of welded 10- and 12-gauge steel with supporting structural steel sections, and each has three doors. The a 500-gallon containment reservoir. The inside surfaces are s within each building, the walls, and the ceilings are coated with chemical-resistant epoxy finish. The floors are epoxy-coated, fire-resistant plywood. Storage of reactive wastes, lithium batteries, gas cylinders and flammable solids is

restricted to these two buildings except for temporary storage that may occur in Building 959 following acceptance of the waste at the HWMF.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum total volumeinventory of RCRA-regulated waste in storage at any time at the HWMF is estimated at 1177,5450 gallons of liquids and/or solids (including lab packs that contain substantial quantities of absorbent). This is the maximum volume of RCRA-regulated wastes that could be removed from the WMAs as part of closure activities. The maximum total waste volumeinventory is broken down as follows:

- Building 959: 7,590 gallons
- Building 958: 599,950 gallons
- Building 958B: 5,0005 gallons
- Building 958C: 5,0005 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure planin Appendix F of the SNL/NM General Part B, partial closure activities specified in this plan assume the following conditions were met during the operational life of the HWMF:

- RCRA-regulated Wwaste handling activities that involvedding the opening of waste containers of RCRA-regulated wastes were confined to the interiors of HWMF RCRA-regulated waste management areas (WMAs). If contamination occurred, it would have been confined to these areas.; and

- Repackaging and bulking activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during repackaging or bulking activities in Building 959, they would only be present in the first 15 feet of the exhaust system.

- The WMAs are physically separate, therefore each WMA is considered independently of other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- There has been no evidence of releases onto the asphalt pavement within the fence.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the WMAs where wastes were managed.

- The interior walls and floors of WMAs in each building were maintained to retain their integrity by following established maintenance and inspection procedures, and breaches of protective coatings did not occur, and small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the HWMF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- Items of equipment within the HWMF repackaging area will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that are most likely to be removed include local exhaust systems (the first fifteen feet), filters, and portable equipment. Items that are most likely to be decontaminated include the interior of the fume hood.

- Removable items within the storage areas will also be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that may be removed include shelves (Building 959) and floor grating.

- The modular storage buildings (958B and 958C) will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The floors of each WMA will be decontaminated by sweeping and washing as described in Section F.5, except as noted in this section.

7.4.2 Closure Schedule

Section F.7 of the site-wide cClosure pPlan in Appendix F provides a timeline for closure activities applicable to all permittedRCRA-regulated Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the HWMF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the HWMF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide Cclosure Pplan in Appendix F presents general sample collection equipment and techniques applicable to all RCRA-regulated waste management Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling,

analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the HWMF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure standardscriteria;, QA and quality control /[QC] procedures, etc.) regarding RCRA closure of the HWMF.

7.5.1 Project DescriptionSampling and Analysis Scope

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and, where appropriate, secondary containment surfacesinterior walls of the three four WMAs at the HWMF (Buildings 958, Building 959, 958B, and 958Cthe two modular storage buildings). Initial wipeAll of the samples will be taken analyzed to determine concentrations of verify that stored RCRA-regulated wastes have not contaminated the WMAs. The wipe samples will be analyzed for a set of indicator compounds parameters selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator compounds parameters and the applicable criteria for clean closure are identified in Tables 6 and 7, and the rationale for their selection is presented in Section 7.5.3. If initial sampling confirms the absence of contamination in the structures, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or those areas will be decontaminated and re-sampled to verify they have been cleaned, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.

This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describes the indicator compound levels that will be used to verify that clean closure has been achieved.

Table 6
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA (representative of material removed from entire floor surface)	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	5.6 ppm 200 ppm <1 ppm 17.3 ppm 39 ppm <0.25 ppm <1 ppm <1 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Same as above	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the HWMF due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 7
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Building 958	A-H	4[d]	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	I-J	4	Same as above	Same as above
Building 959	A_1-G, K	4[d]	Same as above	Same as above
	H-J	4	Same as above	Same as above
Building 958B	A	4[d]	Same as above	Same as above
Building 958C	A	4[d]	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the HWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

[d] Secondary containment surfaces (bottom and sides) will be washed up to the secondary containment level.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

As indicated in Table 7, two samples of used wash water and two samples of used decontamination rinse water will be collected from each area shown on Figures 11, 12, and 13. Used wash water will be contained in the bays, in temporary berms, or other containment devices; sampled; and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.~~Selection of sample locations on the wall and floor surfaces in the HWMF WMAs will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor and wall surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at identified locations of stains and discolorations on surfaces or damage to coatings, e.g., in high traffic areas such as the ramp at the south end of Building 959). Random sample locations have been identified in this SAP, whereas additional biased sample~~

~~locations will be identified at the time of closure. Table 6 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, floor and wall surfaces in each of the HWMF WMAs (Building 958, Building 959, and the two modular storage buildings, Buildings 958B and 958C) were stratified into five general sample areas (floor, north wall, south wall, east wall, and west wall). Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

~~Table 6~~
~~Hazardous Waste Management Facility~~
~~Summary of Random Sampling Program~~

~~WMA~~	~~Grids[a]~~	~~Wall Samples per Grid~~	~~Floor Samples per Grid~~	~~Indicator Parameters[b]~~	~~Closure Standard[c] ($\mu g/m^2$)~~
~~Bldg. 958~~	~~A—D~~	~~3~~	~~1~~	~~Arsenic~~ ~~Barium~~ ~~Cadmium~~ ~~Chromium~~ ~~Lead~~ ~~Mercury~~ ~~Selenium~~ ~~Silver~~	~~387~~ ~~109,752~~ ~~1,557~~ ~~4,704~~ ~~270~~ ~~157~~ ~~7,839~~ ~~7,839~~
	~~E_1, E_2~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~F—I~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~K~~	~~1~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bldg. 959~~	~~A_1—C~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~D—G~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~H~~	~~1~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~I—L~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~M~~	~~1~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bldg. 958B~~	~~A~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bldg. 958C~~	~~A~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~

~~[a] Refer to Figures 11—13 for locations of sample grids.~~

[b] RCRA toxicity characteristic metals have been selected as indicator constituents to demonstrate clean closure at the HWMF; see section 7.5.3 for additional information.

[c] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.

RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each floor and wall grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 7 provides an example of how these random sample coordinates are located, and Figures 11, 12, and 13 show the sampling grids for each HWMF WMA.

Table 7
Hazardous Waste Management Facility
Example Random Sample Locations

WMA	Grid	Xmin, Xmax	Ymin, Ymax	Random X-coordinate (inches)[a]	Random Y-coordinate (inches)[a]
958B	A (Floor)	1 – 96	1 – 264	52	229
	A (S. wall)	1 – 60	1 – 96	10	66
	A (N. wall)	1 – 60	1 – 96	29	51
	A (W. wall)	1 – 60	1 – 264	21	143
	A (E. wall)	1 – 60	1 – 264	34	86

[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.

The entire floor surfaces will be gridded for random sampling, and the wall grids will be limited to a height of 5 feet above the floor surface, which includes the areas most likely to have been affected by waste management activities in the Unit.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA shown on Figures 11, 12, and 13 prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 6.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from

the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 6 and 7.~~The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.~~

~~Dry wipe sampling is proposed for this project, and will be conducted in accordance with the following procedures:~~

- ~~Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 7. Using these coordinates as the center point, delineate a 1 square foot area around this point.~~

- ~~Don clean, dry, lightweight cotton gloves.~~

- ~~Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.~~

- ~~Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.~~

~~This process will be repeated until all floor and wall grids have been wipe sampled.~~

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.~~The following equipment will be required for the wipe sampling to be conducted at the HWMF:~~

- ~~Lightweight, white, cotton gloves (clean-room type)~~

- ~~Stainless steel forceps or tweezers~~

- ~~Filter paper wipes (Whatman® No. 40, 4.25 cm diameter, or equivalent)~~

- A 1 square foot template made from inert material (e.g., Teflon, etc.)

- Precleaned 4 oz. or 8 oz. wide-mouth glass jars with screw-top lids

- Insulated shipping cooler with frozen, gel-type cooling material and cushioning packaging

- Sample collection and custody forms, sample numbers, labels, chain of custody forms, etc.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will is not be required for the wipe sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;

- Rinse the equipment with tap water until the soapy residue is removed;

- Rinse with deionized or distilled water; and

- Allow to air dry or dry with a lint-free cloth.

7.5.2.5Sample Documentation and Custody

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Preservation method

~~Analysis required~~

~~A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.~~

~~7.5.2.6~~7.5.2.5 *Sample Identification*

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, secondary containment, ~~west wall, etc.~~), the grid identifier~~number~~, the sample type (~~random or bias~~e.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-958-~~B~~A-FL~~EW-02~~-~~RAND~~RINSE-01 would indicate the ~~random~~ filtered rinse water sample taken from water used to rinse the floor of Grid A~~B#2 on the east wall of~~ in Building 958.

~~7.5.2.7~~7.5.2.6 *Sample Preservation and Holding Time*

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., ~~. For example,~~ the recommended maximum holding time for metals analysis is ~~6 months~~180 days from sample collection until extraction).

~~*7.5.2.8Waste Management*~~

~~Minimal quantities of waste will be generated through the wipe sampling procedures at the HWMF, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the HWMF will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.~~

7.5.3 Demonstration of Clean Closure

~~RCRA~~ Hazardous waste toxicity characteristic metals have been selected for use as indicator parameters to demonstrate clean closure at the HWMF, as these constituents are present in many of the wastes ~~were~~ commonly stored in the Unit. Other wastes stored in the HWMF typically ~~were~~ are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005 ~~waste codes~~). ~~Wipe s~~Sampling floor sweepings (soil) or decontamination wash and rinse waters~~of concrete and metal surfaces~~ is of limited value~~not a valid method~~ for determining the presence of D001, D002, or D003 waste residuals. In addition, ~~and~~ given their volatility, ~~of~~ F001-F005 constituents~~, they~~ would not likely be present on the floor or secondary containment ~~building~~ surfaces even if ~~they~~ these constituents had been released in the past ~~(and no spills have been documented in the HWMF)~~. If residual contamination is present on the ~~HWMF~~ floor

and wall or secondary containment surfaces of the HWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, wipe samples will be analyzed for RCRA hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B/7471A, or an equivalent method.

Results from initial wipe sampling of the floor and walls in the HWMF will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If wipe sampling results for the selected indicator parameters are lower than the associated cleanup level, as presented in Table 6, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria. Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the wipe sample resultsconcentrations of indicator parameters are greater than the cleanup levelsubstantially elevated, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.13 of the site-wide Cclosure Pplan.

7.5.4 Quality Control

Quality control (QC) for wipe sampling and analysis at the HWMF will be implemented as described in Section F.6 of the site-wide closure plan. to ensure that the data collected provides useful information to document clean closure of the Unit. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.

The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:

- Blank Spike Analysis – The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameters (RCRA metals) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.

- Method Blank – An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures.

~~Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.~~

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.~~Initial data reduction and validation will be done by the laboratory contracted to analyze the wipe samples. The laboratory will report the data in accordance with their internal quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.~~

~~Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.~~

7.6 Decontamination and Verification Procedures

Section F.5.2~~3~~ of the site-wide ~~C~~closure ~~P~~plan ~~in Appendix F~~ presents general decontamination and verification procedures applicable to all ~~RCRA-regulated waste management~~ Units at the SNL/NM facility. Prior to closure, this Unit-specific ~~Closure P~~plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific ~~Closure P~~plan will be submitted to NMED for approval prior to initiation of closure activities at the HWMF.

8.0 TREATMENT PLAN

Sandia /DOE do not perform treatment of RCRA-regulated wastes requiring a permit at the HWMF.

9.0 REFERENCES

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2000, "Flammable and Combustible Liquids Code," NFPA 30, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, " Standard for Dry Chemical Extinguishing Systems," NFPA 17, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 20043, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 75.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

Sandia National Laboratories/New Mexico
Thermal Treatment Facility
Part B Permit Renewal Request

Module II

Revision 4~~3~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... TTF-iii
LIST OF FIGURES ..... TTF-iv
ACRONYMS AND ABBREVIATIONS ..... TTF-v
1.0 GENERAL UNIT OPERATIONS TTF-2
1.1 Designated Waste Management Area TTF-2
1.2 Unit Operations TTF-3
1.2.1 Operation of Containment Systems TTF-3
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes ... TTF-4
1.2.2.1 General Precautions for Handling Reactive Waste TTF-4
1.2.2.2 Engineering and Operating Precautions to Prevent Reactions TTF-5
1.2.3 Preparedness and Prevention TTF-5
1.2.3.1 Required Equipment TTF-6
1.2.3.2 Testing and Maintenance of Equipment TTF-6
1.2.3.3 Access to Communications or Alarm Systems TTF-6
1.2.4 Hazards Prevention TTF-6
1.2.4.1 Preventing Hazards in Unloading TTF-6
1.2.4.2 Preventing Runoff or Flooding TTF-6
1.2.4.3 Preventing Contamination of Water Supplies TTF-7
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages TTF-7
1.2.4.5 Preventing Undue Exposure TTF-8
1.2.4.6 Preventing Releases to the Atmosphere TTF-9
1.3 Container Storage Practices TTF-9
1.4 Treatment Operations TTF-9
2.0 UNIT DESCRIPTION and information TTF-10
2.1 Security Procedures and Equipment TTF-10
2.1.1 Barriers and Means to Control Entry TTF-10
2.1.2 Warning Signs TTF-11
2.2 Traffic Pattern, Volume, and Controls TTF-11
2.2.1 Traffic Patterns TTF-11
2.2.2 Traffic Volumes TTF-12
2.2.3 Traffic Control Signals TTF-12
2.3 Unit Location Information TTF-12
2.3.1 Seismic Standard TTF-12
2.3.2 Floodplain Standard TTF-12
2.4 Topographic Maps TTF-13
2.5 Groundwater Monitoring TTF-14
2.6 Environmental Setting TTF-14
3.0 WASTE ANALYSIS PLAN TTF-17
4.0 INSPECTION plan TTF-18
5.0 PERSONNEL TRAINING TTF-21
6.0 CONTINGENCY PLAN and emergency response TTF-23
7.0 CLOSURE PLAN TTF-26
7.1 Unit Description TTF-26
7.2 Estimate of Maximum Waste Inventory TTF-26

TABLE OF CONTENTS (Concluded)

7.3 Closure Conditions TTF-26
7.4 Closure Activities and Schedule TTF-27
7.4.1 Closure Activities TTF-27
7.4.2 Closure Schedule TTF-28
7.5 Sampling and Analysis Plan TTF-28
7.5.1 Sampling and Analysis Scope TTF-28
7.5.2 Sampling Methodology TTF-29
7.5.2.1 Sample Locations TTF-29
7.5.2.2 Sample Collection TTF-30
7.5.2.3 Sampling Equipment TTF-32
7.5.2.4 Sample Equipment Decontamination TTF-33
7.5.2.5 Sample Identification TTF-34
7.5.2.6 Sample Preservation and Holding Time TTF-34
7.5.3 Demonstration of Clean Closure TTF-34
7.5.4 Quality Control TTF-35
7.5.5 Data Management and Reporting TTF-36
7.6 Characterization Procedures TTF-36
7.7 Contingent Post-Closure Care TTF-36
8.0 TREATMENT PLAN TTF-37
8.1 Treatment Operations TTF-37
8.1.1 Waste Quantities TTF-37
8.1.2 Operations TTF-38
8.1.3 Operating Conditions TTF-39
8.2 Preventing Releases to the Atmosphere TTF-39
8.2.1 Subpart AA TTF-40
8.2.2 Subpart BB TTF-40
8.2.3 Subpart CC TTF-40
8.3 Treatment Effectiveness TTF-40
9.0 Environmental Performance Standards for the Miscellaneous Unit TTF-42
9.1 Characteristics of the Waste and the Unit TTF-42
9.1.1 Waste Characteristics TTF-42
9.1.2 Unit Features TTF-43
9.2 Potential for Deposition or Migration of Wastes or Waste Constituents TTF-45
9.3 Potential Risks to Human Health TTF-46
9.3.1 Receptors TTF-46
9.3.2 Methodology TTF-47
9.3.3 Results TTF-48
9.4 Potential Damage to Animals, Vegetation, and Physical Structures TTF-49
9.4.1 Ecological Screening Assessment TTF-49
9.4.2 Survey Description TTF-50
9.4.3 Receptors Found at SNL/NM TTF-51
9.4.4 Sensitive Species Found at TA-III TTF-52
9.5 Monitoring TTF-53
10.0 REFERENCES TTF-54

LIST OF TABLES

Table No.	Title
1	Thermal Treatment Facility Inspection Criteria and Frequency
2	Thermal Treatment Facility Resource Conservation and Recovery Act-Regulated Waste Management Unit Training Content
3	Thermal Treatment Facility, Emergency Equipment
4	Thermal Treatment Facility, Emergency Coordinator List
~~5~~	~~Thermal Treatment Facility, Summary of Random Sampling Program~~
~~6~~	~~Thermal Treatment Facility, Example Random Sample Locations~~
~~7~~5	Estimated Maximum Quantities of Constituents in SASN Wastes
~~8~~6	Summary of Fate and Transport Mechanism at the TTF
~~9~~7	Full-Time Occupants of Buildings Near TTF in TA-III at SNL/NM
~~10~~8	Results of the Human Health Risk Screening Analysis for the TTF

LIST OF FIGURES

Figure No.	Title
1	Location of the Thermal Treatment Facility at Sandia National Laboratories/New Mexico
2	Thermal Treatment Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
3	Thermal Treatment Facility (TTF)—Plan View
4	Thermal Treatment Facility (TTF)—Section View
5	Thermal Treatment Facility, Traffic Routes and Controls
6	Topographic Map, Thermal Treatment Facility
7	Thermal Treatment Facility, Access Control Features
8	Thermal Treatment Facility, Drainage Control Features
9	Thermal Treatment Facility, Evacuation Routes and Emergency Response and Access Information
10	Thermal Treatment Facility, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AAQS	Ambient Air Quality Standards
A/BCAQCB	Albuquerque/Bernalillo County Air Quality Control Board
COPC	chemicals of potential concern
DOE	U.S. Department of Energy
EA	environmental assessment
ER	Environmental Restoration
ft	foot/feet
HQ	hazard quotient
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
mi	mile
mg/kg	milligram per kilogram
$\mu g/m^3$	microgram(s) per cubic meter
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMFRCD	New Mexico Forestry and Resource Conservation District
QA/QC	quality assurance/quality control
PETN	Pentaerythritol tetranitrate
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan

ACRONYMS AND ABBREVIATIONS (Concluded)

Sandia	Sandia Corporation
SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SSL	soil screening level
SWMU	solid waste management unit
T and E	threatened and endangered
TA	Technical Area
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WMA	waste management area

SANDIA NATIONAL LABORATORIES/NEW MEXICO
THERMAL TREATMENT FACILITY
PART B PERMIT RENEWAL REQUEST

This Sandia National Laboratories/New Mexico (SNL/NM) Thermal Treatment Facility (TTF) Part B Permit Renewal Request is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003~~June 14, 2000~~ [10~~6~~-1~~4~~-03~~0~~], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste treatment operations at the TTF. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application", hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the SNL/NM General Part B, and in appendices to the General Part B meet the applicable requirements for the TTF that are specified in 20 NMAC 4.1.500/40 CFR 264 [~~6-14-00~~10-1-03], and 20 NMAC 4.1.900/40 CFR 270 [~~6-14-00~~10-1-03].

Sandia/DOE also prepared the "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7~~5~~.0" (SNL/NM, 2004~~3~~a), hereinafter referred to as SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this TTF Part B Permit Renewal Request.

In the SNL/NM General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Thermal Treatment Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [~~6-14-00~~ 10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The TTF occupies 196 square feet south of Building 6715 in Technical Area (TA)-III. It is a thermal treatment unit surrounded by an earthen berm and a fence. The entire area within the fence is 8140 square feet. It is used for treatment of explosive waste exhibiting the hazardous waste characteristic of reactivity (D003) generated during operations in Building 6715 (adjacent to the Unit). Sandia/DOE currently operate the TTF in accordance with the terms of NMED Permit NM5890110518-2, issued November 4, 1994 (NMED, 1994), and its subsequent modifications. Sandia/DOE manage all of the wastes listed in the Part A included in Permit NM5890110518-2.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the TTF waste management area (WMA) and TTF operations. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; and hazards prevention. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable ~~RCRA-regulated~~hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts X, AA, BB, and CC [~~6-14-00~~10-1-03], and 20 NMAC 4.1.900/ 40 CFR 270.14 and 270.23 [~~6-14-00~~10-1-03].

The TTF is used to treat specific and well-defined explosive (D003) wastes generated at a test facility in Building 6715. The wastes also meet the definition of ignitable waste (D001), and may bear EPA Hazardous Waste Numbers D011 and F003, depending on the presence of silver and spent solvents. Other constituents are also present, as discussed in Sections 8.0 and 9.0. Explosive silver acetylide/silver nitrate (SASN) slurry is formulated from raw ingredients as needed for tests. SASN is present in the solid and liquid wastes treated at the TTF. Pentaerythritol tetranitrate (PETN) (an explosive) is sometimes included in the tests and would also be present in the wastes. SASN is categorized as a primary explosive, and each discrete crystal (when dry) has the potential to detonate. According to published technical data (Wilden, 1986), SASN can be initiated by the energy of bright light (by raising the surface temperature to the auto ignition temperature of 457 degrees Fahrenheit) or small contact shock. SASN is not approved for transport on public roads. Thermal treatment is an accepted treatment technology for the deactivation of explosive waste (20 NMAC 4.1.800/40 CFR 268.40 [~~6-14-00~~10-1-03]) to meet treatment standards.

1.1 Designated Waste Management Area (20 NMAC 4.1.900/40 CFR 270.23[a])

The location of the TTF at SNL/NM is shown on Figure 1. The TTF has one designated WMA, the treatment area, shown on Figure 2.

The treatment area at the TTF is located outside the south end of Building 6715 in TA-III at SNL/NM. The treatment area consists of a square burn pan constructed of 0.375-inch (in.) steel, 2 feet (ft) 6 in. on a side and 6-in. deep. The bottom of the burn pan is elevated approximately 10 to 12 inches above the floor of the TTF by steel beams. The burn pan is located near the center of a square curbed slab of concrete 14 ft on a side lined with 0.5-in. steel, with a 4-in. high, steel-lined concrete curb around the edge. The burn pan is enclosed within a square cage approximately 4 ft on a side, consisting of expanded metal screen approximately 8-ft high with a nearly solid metal roof having slots for tracks and cables. An expanded metal screen door, remotely activated from inside Building 6715, provides access to the treatment area (i.e., the burn pan). Moveable steel panels are attached to the lower part of two sides of the cage to control airflow as needed. TTF site plans and drawings are presented in Figures 3 and 4.

An enclosure on the east side of the cage houses three propane burners, which can be remotely activated from inside Building 6715. Two propane burners are positioned to heat the burn pan. A third burner is positioned to ignite the contents of the burn pan and flammable vapors above the pan. Liquid wastes to be treated are transferred from Building 6715 to the TTF through flexible transfer hoses utilizing a remotely operated peristaltic pump. The hoses are contained inside a metal channel that provides secondary containment. The flexible hoses and channel terminate approximately 5 ft. from the burn pan and metal tubing transfers the waste the final distance into the burn pan. Solid items to be treated in the TTF are manually loaded into the burn pan.

Liquids that might accumulate at the TTF WMA are contained within a secondary containment system (i.e., the entire steel-lined concrete pad that drains through a filter into a catch tank) and the system ~~that~~ is sufficiently impervious to contain spills or accumulated precipitation until the liquid is removed. The secondary containment system provided by the steel-lined concrete pad is designed to contain at least 20.8 gallons of liquid waste. This is the maximum volume of RCRA-regulated liquid waste in the TTF burn pan at any time. The catch tank has a containment capacity of approximately 157 gallons.

A circular tank located north of the unit and south of Building 6715 is primarily utilized as a process tank for collecting non-RCRA-regulated wastewater from test operations; wastewater collected in this tank is not intended to be treated at the TTF.

Because the TTF is located outside, it is difficult to prevent equipment deterioration; however, the unit and its ancillary equipment are periodically inspected to insure proper operation as described in Section 4.0 of this module. If deterioration sufficient to affect the operation, safety, or reliability of the unit is identified, the affected equipment is either refurbished or replaced.

1.2 Unit Operations (20 NMAC 4.1.900/40 CFR 270.23[a])

Information regarding operations requiring a permit at ~~of~~ all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the SNL/NM General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.23; and 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Because the TTF is located outside, the steel-lined concrete pad periodically collects water from precipitation, and~~;~~ the water drains through a filter into the catch tank. The water typically contains some soil and may possibly contain silver-containing particulates if such particulates are present on the pad. ~~Unless waste spills, untreated RCRA-regulated waste "kicks out" or is ejected from the burn pan during treatment, or otherwise contaminates the steel-lined concrete pad, the water collected in the catch tank consists of precipitation.~~

Treatment operations occur periodically at the TTF and typically ~~may~~ involve burns during one to three days. Each treatment operation is followed by a post-treatment inspection, described in Section 8.0 of this module, which identifies kick~~-~~out or contamination of the steel-lined concrete pad.~~, if any.~~ Operating personnel wet contaminated areas with water and decontaminate them

with wet paper wipes as described in Section 8.1.2. Alternatively, personnel may wash the areas. The wash water typically contains some soil and silver-containing particulates.If the post-treatment inspection does not reveal kick-out or contamination of the steel-lined concrete pad, then the water that collects in the steel-lined concrete pad and/or in the catch tank prior to the next treatment operation is known to be runoff resulting from precipitation and is not contaminated with RCRA-regulated waste constituents. If the post-treatment inspection reveals kick-out or contamination of the steel-lined concrete pad but the situation is remediated prior to the next precipitation event, then the water that collects in the steel-lined concrete pad and/or in the catch tank after remediation and prior to the next treatment operation is known to be runoff resulting from precipitation and is not contaminated with RCRA-regulated waste constituents.

Water on the pad drains through a filter into the catch tank. Soil and other particulates are contained in the filter. The filter is managed as D011 hazardous waste due to the potential presence of silver. If the accumulated water in the catch tank was generated by either of the processes listed above, it In both instances, the accumulated water will be assumed to meet City of Albuquerque wastewater discharge parameters and will be discharged (pumped) directly to the Technical Area III sanitary sewer system after appropriate notifications and approvals. Previous analyses of storm water collected in the catch tank indicate the water meets the wastewater discharge parameters set by the City of Albuquerque. Unit personnel will collect one sample of accumulated water annually; the sample will be analyzed for silver to check that the water continues to meet the discharge limits. If there is not sufficient accumulated water for annual sampling, personnel will collect a sample when water is available.

If water in the catch tank was generated by a process other than those listed above, it will be managed If a post-treatment inspection reveals kick-out or contamination of the steel-lined concrete pad that is not remediated prior to a precipitation event that results in the accumulation of water in the steel-lined concrete pad and/or the catch tank, then the accumulated water will be managed as described in Section B.2.53.3.1 of the Waste Analysis Plan (Appendix B).

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 20 NMAC 4.1.500/40 CFR 264.17)

1.2.2.1 General Precautions for Handling Reactive Waste

The grounds and berms near the TTF are routinely cleared of dry or dead weeds and brush. This helps to prevent brush fires near the TTF. During normal operations, wastes are not stored at the TTF prior to treatment, and the wastes are treated soon after transfer to or placement in the TTF burn pan, as described in Section 8.0 of this module.

Incompatible wastes are not accepted for treatment at the TTF. In particular, copper is incompatible with the explosive slurry of silver acetylide/silver nitrate (SASN) treated at the TTF; therefore, no exposed copper is allowed when SASN is present. No other materials that would produce undesirable reactions with RCRA-regulated waste (e.g., explosion, toxic fumes, or structural damage) are located at the TTF.

Sources of ignition that may be present at the TTF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat,

sparks, and engines. Unit personnel take the precautions and measures described in Section 1.1.2.1 of the General Part B to prevent accidental ignition or reaction of wastes at the TTF. Precautions during waste treatment activities are discussed in the following section.

1.2.2.2 Engineering and Operating Precautions to Prevent Reactions

General Treatment Operations

Unit personnel operate the TTF from the control room inside Building 6715. Personnel are not present in the area between Building 6715 and the Unit during treatment operations. Treatment operations begin only after an audible warning signal, an area check for personnel, and a public address announcement that the TTF will begin operations. The TTF access gates are closed and locked. The Building 6715 cComplex fence access gates are closed during TTF waste transfer operations.

Solid Items

Solid items, saturated in water, are loaded manually into the burn pan. Unit personnel open the TTF expanded metal screen door from the control console in Building 6715. The door is operable only from the control console. Unit personnel then remove the key from the burner control console, which disablinges the gas burner system, before manually loading waste into the TTF burn pan. Typically, the gas burner system is controlled by the same operator who manually loads the TTF burn pan.

Liquids

Liquids are transferred to the burn pan through the waste transfer pump and lines. The operator at the control console in the building operates the pump remotely. The burners may or may not be operating during the transfer, depending on the stage of the treatment operations.

Maintenance Operations

Prior to maintenance and repair activities that involve hot work such as welding or cutting, or other activities that involve direct contact with the burn cage, pan, equipment, pad, or surrounding area, operating personnel may check the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner to ensure that residual untreated explosive material is not present to cause a hazard to workers.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C)

The following sections address required equipment, testing, and maintenance of equipment, and access to communications or alarm systems at the TTF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrant at the TTF is shown in Figure 9. Information on other required equipment located at the TTF is provided in Section 6.0 and Table 3 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the TTF is provided in Appendix C of the SNL/NM General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the TTF is provided in Section 1.1.3.3 of the SNL/NM General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the TTF to prevent hazards. Additional information applicable to the TTF and all other Units at SNL/NM is included in Section 1.1.4 of the SNL/NM General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

TTF personnel employ the practices described in Section 1.1.4.1 of the SNL/NM General Part B to prevent hazards in unloading, as applicable. Waste treated at the TTF is pumped or hand-carried to the Unit from Building 6715. Unloading activities are limited to removal of ash residue from the burn pan or contaminated water from the catch tank, followed by loading of containers ~~of ash or contaminated water~~ onto a flatbed truck or other vehicle for transport to another Unit. Vehicles are typically loaded on the paved area southeast of Building 6715 (Figure 7). The surface is level, the pavement is in good condition in the area, and there is sufficient room for the vehicles used to transport RCRA-regulated wastes between the TTF and the receiving Unit(s).

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land surrounding the TTF slopes gently toward the west. Sheet-flow runon of surface water from surrounding areas is diverted around the TTF treatment area by an 8-ft-high earthen berm that surrounds the Unit on the east, south, and west. The diverted storm water drains to the west.

Sheet-flow runoff from the outside face of the berms surrounding the TTF flows away from the Unit. Sheet flow runoff from the inside face of the berms is directed toward the center of the

bermed area, around the steel-lined concrete pad, and toward the opening in the berm on the north side. The TTF burn pan sits near the center of the steel-lined concrete pad, which is surrounded by a 4-inch-high concrete curb and is elevated approximately 12 to 24 inches above the surrounding soil, further preventing runon.

The curbs also prevent runoff from the TTF WMA. Storm water that collects in the pad drains to the catch tank. The containment capacity of the catch tank exceeds the volume of treatment area runoff expected during a storm event.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that ~~RCRA-regulated waste~~ management of RCRA-regulated wastes ~~activities~~ at the TTF will affect water supplies, as described in Section 1.1.4.3 of the SNL/NM General Part B. Section 2.6 of this module includes a discussion of the surface water and groundwater in the vicinity of the TTF. Section 9.0 discusses the potential for the deposition or migration of waste or waste constituents to surface water and groundwater in the vicinity of the TTF.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B.

Four pieces of equipment at the TTF would be affected by a power failure: the burners, the motor-driven burn cage door, the motor-driven burn pan lid, and the waste transfer pump. In the event of a power failure, personnel would take the following actions.

1. If the power failure occurs before waste is placed inside the burn pan, treatment operations will be delayed until power is restored.

2. If the power failure occurs after wastes are present in the burn pan but before the burners are ignited, personnel will manually lower the burn pan lid and wait until power is restored before proceeding with treatment. If the treatment cannot be conducted during the same day, Unit personnel will wet the waste with water as needed to stabilize it, secure the area and notify Sandia/DOE security personnel of the presence of and potential hazards associated with the waste. Unit personnel will conduct treatment when power is restored and all other permit requirements for treatment operating conditions, listed in Section 8.1.3 of this module, have been met.

3. If the power failure occurs during treatment, personnel will not enter the TTF until all combustion has ceased and water has been added to the waste and residue to reduce the explosive hazard, and it is deemed safe to enter. If the power is not restored in time to complete treatment during the day, personnel will secure the area, manually lower the burn pan lid if it is deemed safe to do so, and allow the waste to remain in the burn pan. Unit personnel will notify Sandia/DOE security personnel of the presence of and potential hazards associated with the waste. Unit personnel will complete treatment

when power is restored and all other permit requirements for treatment conditions have been met.

4. If power failure occurs during waste transfer, personnel will stop transferring waste and follow the procedures outlined in #3 above.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

TTF personnel employ the practices described in Section 1.1.4.5 of the SNL/NM General Part B to prevent undue exposure to the wastes to be treated at the TTF.

Hazards associated with the waste treated at the TTF (e.g., the explosive nature of the wastes) serve to increase the potential for personnel exposure to hazardous~~RCRA-regulated~~ waste constituents. These are addressed through Unit design and operations:

- Treatment operations are scheduled as soon as practicable after the operations in Building 6715 are completed, minimizing the amount of time that explosive wastes are present on site.

- RCRA-regulated waste that cannot be pumped to the TTF (solid items) is first wetted with water to temporarily reduce the explosive sensitivity and minimize hazards to personnel.

- When wastes are present~~During treatment operations~~, Unit personnel keep the burn pan covered with the lid except when wastes are being loaded into the pan or combustion is occurring. This practice serves to minimize personnel exposure to the wastes.

- The TTF is operated from a control console inside Building 6715. Operating personnel observe the treatment through a video camera. During combustion, personnel are not allowed in the area between Building 6715 and the TTF. Both of these practices serve to minimize the potential for exposure to the wastes.

- Operating personnel may check the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner before maintenance and repair activities to ensure that residual untreated explosive material is not present to cause a hazard to workers.

In addition to the hazards associated with equipment operation and treatment of explosives, there are three sources of noise during treatment:

- Detonation of dried explosive SASN crystals from the liquids and solids treated at the TTF. Because the particles are small, the detonations are relatively small, with a popping noise similar to a popping balloon.

- Operation of the propane burners. The sound of the operating burners is similar to the sound of burners used in a hot air balloon.

- Warning bell/buzzers. The warning bells and /buzzers isare designed to alert Unit personnel to treatment operations. The bell/buzzer is are louder than the propane burners or the detonation.

Because Unit personnel are inside Building 6715 during treatment, they are not subjected to the noise. Personnel in neighboring Sandia operations and buildings maywill hear the warning bells but will not be affected by the noise of TTF treatment. The closest continuously occupied building is approximately 470795 feet east southeast of Building 6715 and the TTF. The physical locations of neighboring buildings and personnel are summarized in Section 9.3 of this module.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi]; 20 NMAC 4.1.500/40 CFR 264 Subparts AA, BB, and CC)

TTF operations do not include storage of RCRA-regulated wastes in containers subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC. Further, operations do not include any storage or management associated with storage that would be subject to the requirements of 20 NMAC 4.1.500/40 CFR Subparts AA or BB.

The treatment process and releases to the atmosphere are described in Section 8.0 of this module. Compliance with the requirements of 20 NMAC 4.1.500/40 CFR Subparts AA, BB, and CC is discussed in Section 8.1.4.

1.3 Container Storage Practices

Sandia/DOE do not conduct container storage of RCRA-regulated wastes requiring a permit at the TTF.

1.4 Treatment Operations

The TTF is currently permitted for the treatment of RCRA-regulated wastes in accordance with the conditions of the “Sandia National Laboratories/New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-2” (NMED, 1994). Treatment practices applicable to the TTF are presented in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [~~6-14-00~~10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [~~6-14-00~~10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [~~6-14-00~~10-1-03]).
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [~~6-14-00~~10-1-03]).
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [~~6-14-00~~10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [~~6-14-00~~10-1-03]).
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [~~6-14-00~~10-1-03]).
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [~~6-14-00~~10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [~~6-14-00~~10-1-03]).
- Unit-specific environmental setting information (20 NMAC 4.1.900/40 CFR 270.23[b] [~~6-14-00~~10-1-03], and 20 NMAC 4.1.500/40 CFR 264.601[a][2-6], [b][3-9], [c][4,5] [~~6-14-00~~10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of the SNL/NM General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the TTF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The TTF is completely surrounded by an approximately 8-ft high, single chain-link fence topped with three strands of barbed wire. Three gates provide access to the TTF and remain locked except when TTF personnel are performing treatment operations, inspections, maintenance, or repairs. The active portion of the TTF is also the south portion of the Building 6715 complex. Access to the north TTF fence, and, therefore, all three TTF gates, is from inside the

Building 6715 complex, which is also completely surrounded by an 8-foot tall chain link fence with and lock-equipped gates. The Building 6715 doors are kept locked during non-operational hours, restricting access to TTF controls. As noted in Appendix A of the SNL/NM General Part B, Sandia security personnel periodically monitor the Building 6715 complex and TTF gates during non-operational hours.

TTF personnel have Sandia-issued badges. Visitors~~Individuals who do not have a Sandia-issued badge~~ contact TTF personnel for access~~are escorted~~. TTF personnel and visitors typically enter the Building 6715 c~~C~~omplex through the east gate. During treatment events, all TTF gates are locked. These procedures limit access to the TTF ~~RCRA-regulated~~ WMAs, in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [~~6-14-00~~10-1-03].

The Building 6715 complex is located inside TA-III (Figures 1 and 2). TA III is surrounded by a barbed-wire fence with designated access gates. TA-III access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-III.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fences surrounding the TTF are posted with “Danger: Unauthorized Personnel Keep Out” (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the TTF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the SNL/NM General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes (e.g., ash) from the TTF include Wyoming Boulevard, Hardin Boulevard (formerly O Street), P Street, Pennsylvania Avenue, and the access road to TA-III.

Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved access road to TA-III turns southwestward off Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Boulevard Kirtland Air Force Base entrance gate as shown on Figure A-4 in Appendix A of the SNL/NM General Part B.

Within TA-III, traffic access to and from the TTF is along the 2-lane asphalt-paved roads shown on Figure A-6 in Appendix A of the SNL/NM General Part B. Vehicles entering the Building 6715 complex travel on a 2-lane asphalt-paved drive from the road to the east gate (Figure 5). Within the Building 6715 c~~C~~omplex, waste is typically transported on concrete- or asphalt-paved surfaces.

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, Hardin Boulevard, and P Street are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Traffic volumes within TA-III are light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport equipment and waste containers.

Fewer than 15 vehicles typically enter/exit the compound per week. These include flatbed trucks and trailers carrying supplies, treated residues, and contaminated catch tank water from the TTF. SASN wastes are generated in Building 6715; therefore, wastes are not transported in vehicles to the TTF for treatment. Treated residues are transported to another Unit at SNL/NM for storage and/or treatment prior to disposal. Catch tank water may also be transported to another unit, as discussed in Section 1.2.1.

2.2.3 Traffic Control Signals

Vehicles must stop at a gate prior to entering or leaving TA-III. Only authorized personnel are permitted to enter TA-III. Speed limit signs (i.e., “30 mph Unless Otherwise Posted”) are located at several locations in TA-III.

There are no traffic control signals or signs at the Building 6715 c~~C~~omplex. The TTF is locked except when personnel are present. Treatment operations are carefully coordinated with appropriate individuals to limit vehicle presence and access to operating and treatment personnel. The southeast corner of the Building 6715 c~~C~~omplex is paved. Therefore, signals or signs are not necessary to control traffic within the Building 6715 c~~C~~omplex.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11]; 20 NMAC 4.1.900/40 CFR 264.18)

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i] and [ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMA at the TTF is not located within 3,000 ft of any fault with Holocene displacement (see Section A.4.2 in Appendix A of the SNL/NM General Part B ~~[SNL/NM, 2003b]~~).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMA at the TTF is not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the SNL/NM General Part B ~~[SNL/NM, 2003b]~~).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19] and 270.23[b]; 20NMAC 4.1.500/40 CFR 264.601[a][6] and [b][9])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) and 270.23[b] [~~6-14-00~~10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [~~6-14-00~~10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [~~6-14-00~~ 10-1-03]).

- Surface waters, including intermittent streams, near the TTF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii][~~6-14-00~~10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B and Figure 6 of this module. (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] and 270.23[b]; 20NMAC 4.1.500/40 CFR 264.601[a][6] and [b][9] [~~6-14-00~~10-1-03]). The area surrounding the TTF is occupied by test areas and Sandia-controlled operations (industrial land use). The area of KAFB immediately north of SNL/NM TA-III is mostly open (other land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [~~6-14-00~~10-1-03]).

- Legal boundaries of SNL/NM (including the TTF) are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [~~6-14-00~~10-1-03]).

- Access control features at the TTF (e.g., fences, gates) are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [~~6-14-00~~10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the TTF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [~~6-14-00~~ 10-1-03]).

- The location of the TTF WMA and associated structures, loading and unloading areas, roads, and sanitary sewers are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [~~6-14-00~~10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figures 6 and 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [~~6-14-00~~ 10-1-03]).

- The location of the TTF WMA is shown on Figure 6 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][xii] [~~6-14-00~~10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the TTF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [~~6-14-00~~10-1-03], SNL/NM has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the TTF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information for SNL/NM is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The TTF is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor is the TTF likely to affect groundwater quality during normal operations or during unusual events.

2.6 Environmental Setting (20 NMAC 4.1.900/40 CFR 270.23[b] ~~[6-14-00]~~, and 20 NMAC 4.1.500/40 CFR 264.601[a][2-5], [b][3-8], [c][4,5] ~~[6-14-00]~~)

As described in Appendix A of the General Part B, SNL/NM is located in the western part of Kirtland Air Force Base in Bernalillo County. DOE/Sandia monitor weather conditions and ambient air quality at SNL/NM through a network of monitoring stations. Meteorological data from a tower at the northeast corner of TA-III indicate that the prevailing winds at SNL/NM are from the southeast and east. The annual wind rose is shown on Figure 6. During daylight hours, the prevailing winds are from the west, southwest, and northwest. Rapid nighttime ground cooling after sunset on cloudless or near-cloudless nights generates drainage winds out of the mountains; in TA-III, these winds come from the southeast and east (SNL, 2004b, 2002).

Bernalillo County meets the New Mexico and national ambient air quality standards (AAQS) for ozone, particulates, lead, and oxides of nitrogen and sulfur. Bernalillo County currently meets the New Mexico and national AAQS ~~standards~~ for carbon monoxide. DOE/Sandia monitor ambient air quality at several stations; the two nearest the TTF are located north of TA-III and at the southeast corner of TA-III (near the existing RMWMF). Data from both stations indicate air quality is in compliance with New Mexico and national AAQS. The monitoring results also allow DOE/Sandia to establish background airborne concentration levels for pollutants of concern and determine that SNL/NM operations do not affect ambient air quality (SNL, 2004b, 2002).

SNL/NM is located in an arid region with an average annual precipitation of approximately 8 inches (National Oceanographic and Atmospheric Administration [NOAA], 1990). Half of the average annual precipitation occurs in the form of brief but heavy thunderstorms during the summer period, July through September.

Water rarely infiltrates more than a few feet into the soil, and typically returns to the atmosphere via evapotranspiration. Evapotranspiration in the area has been estimated at 95 percent of the annual rainfall (Thomson and Smith 1985). Sandia/DOE have conducted extensive field investigations and analytical studies in TA-III. Data collected from boreholes, groundwater

monitoring wells, and instantaneous profile tests have measured saturated and unsaturated zone characteristics that include volumetric water content, saturated and unsaturated hydraulic conductivity, bulk density, and isotopic chloride content (Peace et al., 2002). Based upon these data, groundwater recharge is negligible at TA-III and most of the water from precipitation returns to the atmosphere via evapotranspiration. Vegetation, although sparse at the site, increases the rate of moisture loss from the subsurface soil through transpiration.

Sandia/DOE's ongoing Terrestrial and Ecological Surveillance Program includes monitoring for the presence of various compounds in soil, sediment, surface water, and vegetation near past or present SNL/NM operations (SNL/NM, 2004b, 2002). As part of the program, samples of soil and vegetation have been collected for several years at a location in the northern part of TA-III (approximately 600 feet northeast of the TTF). The samples collected each year, including ~~in~~ 2003 and 2001 were analyzed for several metals, including silver. Concentrations of silver and other metals in the soil and vegetation vary slightly from year to year due to slight variations in sampling location, differences in climatic conditions, and laboratory variations or errors. The silver concentrations in the samples from this location were consistent with the levels in off-site samples. Silver has historically and consistently been detected in soils at concentrations that are consistent with those found in off-site locations, and the data do not indicate a trend toward increasing concentrations over time (SNL/NM, 2004b, 2002).

As noted in Appendix A of the General Part B, the nearest major body of surface water (the Rio Grande river) is situated approximately 7 mi west of the TTF. Surface water (with the exception of several springs in the eastern part of KAFB) is found only as ephemeral streams that flow for short periods from runoff after storm events or during the spring melt of mountain snowpacks. The primary surface water drainage channels on KAFB are Tijeras Arroyo and Arroyo del Coyote (which joins Tijeras Arroyo north of TA-III.) Surface water in TA-III infiltrates into the soil, and does not flow to either of the arroyos or to the Rio Grande.

The depth to saturated groundwater underlying SNL/NM TA-III is approximately 500 feet. Sandia/DOE have an established extensive groundwater monitoring system to assess the quality of the groundwater in the SNL/NM area. The monitoring network includes observation wells, test wells, production wells, and other hydrogeologic devices. Routine samples are analyzed for toxic constituents, basic water quality, and water levels. The results are published annually in the Groundwater Monitoring Report (SNL/NM, 2003~~b~~).

The historical direction (no longer apparent) of regional groundwater flow in the western part of KAFB (including the area west of TA-III) has been westward from the mountains toward the Rio Grande (Gram, 1985). However, due to groundwater pumping by KAFB and the City of Albuquerque, a depression in the water table has created a broad trough (drawdown) directing flow towards the well fields at the northwest end of KAFB. The trough extends as far south as TA-III and affects groundwater flow at the western edge of TA-III. The TTF is east of the trough, and groundwater flow under the TTF is toward the west (SNL/NM, 2001a, 2001b).

The well fields at the northwest end of KAFB are located approximately 3 miles northwest and downgradient of the TTF, and the closest downgradient water supply well is KAFB-4. Approximately 117,000 gallons of water were pumped from Well KAFB-4 during the 12-month period ending September 30, 2001. During the same time period, approximately 1.2 billion gallons of water were pumped from all the KAFB wells (SNL/NM, 2003~~b~~).

Over 280 archeological sites have been recorded on KAFB (including the withdrawn area), and in the buffer zones west of KAFB. No archeological sites or Native American traditional cultural properties have been identified in TA-III (DOE, 1999).

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/ 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/ 40 CFR 264.13, "General Waste Analysis" [~~6-14-00~~10-1-03], waste analysis requirements applicable to all units, including the TTF, are addressed in Appendix B of the SNL/NM General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [~~6-14-00~~10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [~~6-14-00~~10-1-03] require that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous~~RCRA-regulated~~ waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to ~~RCRA-regulated waste~~ management of RCRA-regulated wastes~~activities~~ to ensure that human health and the environment will be protected.

20 NMAC 4.1.500/40 CFR 264.15(b)(4) [~~6-14-00~~10-1-03], requires inspections of specific portions of a facility, rather than the general facility. RCRA-regulated waste at the TTF is managed in a miscellaneous unit requiring inspection as a "specific portion" of the SNL/NM facility. 20 NMAC 4.1.500/40 CFR 264.602 [~~6-14-00~~10-1-03], requires that inspections required in 20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [~~6-14-00~~10-1-03], as well as any additional requirements needed to protect human health and the environment, be met. The requirements of 20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [~~6-14-00~~10-1-03] are discussed in this section, Section 6.0, and Appendices C and E of the SNL/NM General Part B.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. TTF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 1, with the inspection criteria and frequency.

The inspection results (including any remedial actions taken) are recorded on a form similar to those in Appendix C. The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms similar to the ones presented in Appendix C. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained in Building 6715. Inspection records for previous calendar years are maintained in Building 6715 or the SNL/NM Records Center.

Table 1
Thermal Treatment Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 3 "Emergency Equipment" in this module for additional information**		
Eye wash and safety shower	Operational, accessible, in good condition	Monthly
First-aid kit	Present and stocked	Monthly
Personal protective equipment	Required items present and in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Public address system	Operational	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Waste transfer pump	Present, operational, and in good condition	Prior to use
Waste transfer tubes	Free of apparent leaks and in good condition	Prior to use
Burn pan	Present, free of apparent leaks, and in good condition	Prior to treatment. Monthly otherwise.
Burn pan lid	Operational and in good condition	Prior to treatment. Monthly otherwise.
Burn cage	Present and in good condition	Prior to treatment. Monthly otherwise.
Burn cage door	Operational and in good condition	Prior to treatment. Monthly otherwise.
Steel-lined concrete pad	Free of apparent cracks and in good condition	Monthly
Filter element	Present, free of apparent tears or holes, and in good condition	Monthly
Rain catch tank	Free of apparent leaks and in good condition	Monthly

Table 1 (Concluded)
Thermal Treatment Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Area condition	Free of combustible materials and weeds and in good condition	Prior to treatment. Monthly otherwise.
Red warning beacons	Present and operational	Prior to treatment. Monthly otherwise.
Water spigot and hose	Present, operational, and in good condition	Prior to treatment. Monthly otherwise.
Burner control warning bell	Operational	Prior to treatment. Monthly otherwise.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present legible, and in good condition	Monthly
Gates	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/ 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [~~6-14-00~~10-1-03] "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the TTF.

TTF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the SNL/NM General Part B.

Only the following job descriptions identified in Appendix D, Table D-2 are applicable at the TTF: Training Director, Project Leader, Emergency Coordinator, Field Technician, and Inspector.

Additional training designed to specifically teach TTF personnel (i.e., TTF Project Leader, TTF Field Technician, TTF Inspector) to perform their duties safely and in conformance with regulatory requirements is presented in this section. TTF training course content includes, at a minimum, the topics shown in Table 2.

Training records for TTF personnel are maintained in Building 6715.

Table 2
Thermal Treatment Facility
Resource Conservation and Recovery Act-Regulated Waste Management Unit
Training Content

Explosives Personnel Safety Course

Duration: Variable (Typically 16 hours)
Frequency: Initial
Method: Classroom instruction

Minimum content may include:

- Basic explosives definitions
- Overview of explosives and explosive device categories and characteristics
- Initiation stimuli and safety guidelines for avoiding accidental ignition
- Standards for explosives operations, including compatibility, storage, and standard operating procedures

Operating Procedures of the Thermal Treatment Facility

Duration: Variable (Typically 4 hours)
Frequency: Annual
Method: Classroom instruction, on-the-job training, and/or document review

Minimum content may include:

- Overview of written operating procedures
- Overview of the waste analysis plan
- Safety practices
- Security, site entry, and site control
- Facility operations
- Facility equipment and structures
- Procedures to prevent the reaction of reactive waste
- Permit requirements for the Thermal Treatment Facility

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the SNL/NM General Part B. Supplemental TTF-specific information is included in this section, in Figure 9, and in Tables 3 and 4 of this module. Current copies of the sSite-wWide cContingency pPlan and this supplemental information are maintained in Building 6715 and at the SNL/NM Emergency Operations Center.

The TTF is located in the north-central portion of Technical Area III at SNL/NM, just south of Building 6715. The TTF consists of a square, steel burn pan, 30 inches (in.) on each side and 6 in. deep. A remotely-operated metal lid can be raised to open, or lowered to cover, the burn pan. The burn pan is enclosed by an expanded metal screen (i.e., open to the air) cage, approximately 4 feet (ft) on each side and 8 ft tall. Access to the burn pan is provided by a door on the north side of the burn cage, which is operated remotely using controls inside Building 6715. The burn cage sits in the center of a steel-lined concrete pad. The concrete pad is surrounded on the west, south, and east sides by an earthen berm, approximately 8 ft tall. An 8-ft-high chain-link security fence surrounds the entire TTF.

The TTF is used to thermally treat (i.e., burn) small quantities of waste explosive substances, waste liquids (e.g., water, volatile organics) contaminated with explosive substances, and waste items (e.g. rags, wipes, swabs, filters, wood, and inert test debris) contaminated with explosive substances. Wastes treated at the TTF may have U.S. EPA Hazardous Waste Numbers D001, D003, D011, and F003.

RCRA-regulated waste is not stored at the TTF and is only present just before and during treatment operations. However, if for some reason treatment operations are aborted and it is deemed unsafe to remove the waste, the waste will be wetted as needed to stabilize it, the burn pan lid will be lowered remotely to cover the burn pan and the waste will remain there until it is possible to perform the treatment or safely remove the waste. Personnel will not enter the TTF unless waste is not present, or it is fully treated, or it has been stabilized by saturation with water.

Figure 9 presents the evacuation route, emergency response, and access information for the TTF. Table 3 lists the emergency equipment typically available at the TTF. Table 4 lists the emergency coordinators for the TTF.

Table 3
Thermal Treatment Facility, Emergency Response Equipment

Building 6715 Complex

Category	Description/Capabilities	Location
Safety and Decontamination Equipment	Permanent eyewash/hand-held deluge showers	Building 6715
	First aid kit	Building 6715
	Absorbent (sufficient absorbent for 20.8 gallons of liquid that could be present in the burn pan)	Building 6715
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at Building 6715
	Recovery drums and containers	In equipment storage at Building 6715
	Miscellaneous PPE (protective suits, goggles, gloves)	Building 6715
Internal Communication and Alarm System	Fire alarm pull station (pulling handle sends signal to KAFB fire department)	One on east wall inside Building 6715 near personnel door
	Public address system	Microphone in Building 6715
External Communication System	Telephones	Building 6715
	Fire alarm pull station (pulling handle sends signal to KAFB fire department)	Near personnel doors in Building 6715.
Fire Extinguishers	Portable (A-B-C)	One at or near each personnel door in Buildings 6715, one located at the TTF fence.
Fire Suppression	Water supplied by fire hydrant	One hydrant, location shown in Figure 9

KAFB Kirtland Air Force Base~~.~~

Table 4
Thermal Treatment Facility, Emergency Coordinator List

~~April 16, 2003~~November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	David Castillo Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-4192 (office) (505) 540-9375 (pager)	(505) 899-1956
First Alternate	Bill Suderman Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-4218 (office) (505) 540-4019 (pager)	(505) 265-1786
Second Alternate	Tim Covert Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-4664 (office) (505) 530-0215 (pager)	(505) 299-5367

One or more of these personnel are routinely available during operating hours (7:00 am to 5:00 pm on days when activities are conducted in Building 6715).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and X, [~~6-14-00~~10-1-03]. General closure information applicable to all ~~RCRA-regulated~~ Units at SNL/NM~~,~~ and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the ~~SNL/NM~~ General Part B. The site-wide ~~Closure~~ p~~P~~lan includes a description of the SNL/NM facility,~~;~~ waste descriptions,~~;~~ closure performance standards,~~;~~ general closure methods,~~;~~ a sampling and analysis plan (SAP), a general closure schedule,~~;~~ procedures for amendment of the ~~Closure~~ p~~P~~lan,~~;~~ closure certification and ~~report~~letter,~~;~~ ~~and~~ survey plat, and post-closure requirements. Unit-specific information for closure of the TTF is included in this section.

7.1 Unit Description

The TTF is located in the north-central portion of Technical Area III at SNL/NM, just south of Building 6715. The TTF consists of a square, steel burn pan that is~~,~~ 30 ~~inches (~~in~~.)~~ on each side and 6 in. deep. A remotely-operated metal lid can be raised to open, or lowered to cover, the burn pan. The burn pan is enclosed by an expanded metal screen (i.e., open to the air) cage, approximately 4 ~~feet (~~ft~~)~~ on each side and 8 ft tall. Access to the burn pan is provided by a door on the north side of the burn cage, which is operated remotely from controls inside Building 6715. The burn cage sits in the center of a steel-lined concrete pad. The concrete pad is surrounded on the west, south, and east sides by an earthen berm, approximately 8 ft high~~tall~~. An 8-ft-high chain-link security fence surrounds the entire TTF.

7.2 Estimate of Maximum Waste Inventory (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum ~~total~~ inventory of RCRA-regulated waste in treatment at any time at the TTF is no more than 20.8 gallons of explosive-contaminated material. This is the maximum volume of RCRA-regulated waste that could be removed from the TTF as part of closure activities. ~~The total quantity of RCRA-regulated waste treated in the TTF during its operating life will be estimated at the time of closure.~~

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan in Appendix F~~ of the SNL/NM General Part B~~, partial closure activities specified in this plan assume the following conditions were met during the operational life of the TTF:

- ~~RCRA-regulated~~ W~~w~~aste handling activities at the TTF under this permit were confined to the burn pan and immediate surrounding area. If contamination occurred, it would have been confined to those areas.~~; and~~

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- RCRA-regulated wastes have been kicked out onto the steel-lined concrete pad during treatment. The kickout has been identified and removed during the post-treatment inspections.

- The concrete pad has been covered with the steel liner and therefore does not contain elevated concentrations of RCRA-regulated wastes or hazardous waste constituents (i.e., silver).

- If RCRA-regulated wastes were kicked out beyond the edge of the steel-lined concrete pad during treatment, they would have been deposited on the earthen berm near the pad. Personnel inspected the berm and removed visible kickout following treatment operations.

- The burn pan and all other equipment were ~~was~~ maintained to retain ~~its~~ their integrity by following established maintenance and inspection procedures.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the TTF. Sandia/DOE will use the following approach:

- Items of equipment within the TTF treatment area will be removed, including the burn pan and lid, metal screen cage, ancillary equipment, and the steel liner on the concrete pad. Items that are removed will be recycled, if possible. Those that cannot be recycled will be characterized to determine requirements for management.

- The soil in the berm will be excavated, characterized to determine requirements for management, and removed from the TTF site if it contains elevated concentrations of RCRA-regulated wastes or hazardous waste constituents (i.e., silver) from the treatment operations at the TTF. Soil that does not contain elevated concentrations of silver may be left at the site and used for general grading purposes.

- The concrete pad will be characterized to determine requirements for management, and removed from the TTF site.

- The soil under the concrete pad and in the areas surrounding the earthen berm will be sampled and analyzed to determine whether it contains elevated concentrations of silver from TTF operations. Additional soil will be removed as needed to achieve clean closure of the Unit.

7.4.2 Closure Schedule

Section F.7 of the site-wide cClosure pPlan in Appendix F provides a timeline for closure activities applicable to all permittedRCRA-regulated Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the TTF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the TTF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide Cclosure Pplan in Appendix F presents sample collection equipment and techniques applicable to all RCRA-regulated waste management Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the TTF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure standardscriteria;, QA and quality control /[QC] procedures, etc.) regarding RCRA closure of the TTF.

7.5.1 Sampling and Analysis ScopeProject Description

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples that will be obtained during closure activities at the TTF (described above).

The TTF components will be recycled, if possible. Any components that cannot be recycled will be characterized to determine proper management. The concrete pad and the soil from the earthen berms will also be characterized to establish appropriate management.

Soil samples from beneath the concrete pad and the areas surrounding the berms will be collected for analysis and compared to the established background soil concentration to demonstrate clean closure of the Unit. If the background concentration is exceeded in these soil samples, additional sampling will be conducted, and soil exceeding the background concentration will be removed. Sampling, analysis, and removal of these soils will continue until the applicable criterion for clean closure is met. from the floor of the burn pan and the steel lining on the concrete pad, as well as representative soil samples from the earthen berm surrounding the TTF WMA. Initial samples will be taken to verify that RCRA-regulated wastes treated in the TTF have not contaminated the surrounding area. The soilAll samples will be analyzed for silver, which is the only hazardous waste constituent of concernremaining in the ash after treatment at the TTF (as described in Section 9.1 of this Module). If initial sampling confirms the absence of contamination in the TTF structures and the surrounding berm, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or the soil in those areas will be removed for disposal and the area will be re-sampled to verify closure performance

~~standards have been met, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.~~

~~This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describesthe closure performance standards for silver that will be used to verify that clean closure has been achieved.~~

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The components of the TTF will either be recycled, or characterized to determine if they are hazardous waste, or declared hazardous waste (due to the potential deposition of silver, D011) and managed appropriately. In the second instance, characterization will consist of collecting a representative sample from each component. This sample will be biased towards surface areas suspected of being contaminated (e.g., visibly stained or discolored areas).

The concrete pad will be characterized to determine if it will be managed as solid waste debris or hazardous waste debris. A representative sample will be collected, and the location will be biased towards an area that is suspected of being contaminated (e.g., a visibly stained or discolored area).

The soil comprising the earthen berm surrounding the TTF will be removed, and a composite grab sample will be collected from each 20-cubic-yard batch of soil. These characterization samples will be analyzed to determine if the threshold concentration for silver is exceeded and to determine appropriate management methods.

The soil beneath the concrete pad and in the areas surrounding the earthen berm will be sampled to determine if the threshold concentration for silver is exceeded. The locations for and number of these samples will be determined at the time of closure because it is not feasible to identify them until the pad and the earthen berm are removed and the areas are evaluated to determine appropriate sample locations (e.g., stained or discolored areas).
~~Selection of sample locations on the burn pan and floor surfaces of the steel-lined concrete pad will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at locations of stains and discolorations on surfaces, if any are identified). Selection of soil sampling locations will be done using the random grid selection process described below.~~

~~Random sample locations have been identified in this SAP, whereas additional biased sample locations will be identified at the time of closure. Table 5 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, sampling grids have been established on each of the surfaces to be sampled (burn pan floor, steel lining on the concrete pad floor, and the earthen berm). Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

~~RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 6 provides an example of how these random sample coordinates are located, and Figure 10 shows the sampling grids for each TTF area to be sampled.~~

7.5.2.2 Sample Collection

A representative sample will be collected from components comprising the TTF if it is determined that any component cannot be recycled and sampling and analysis is necessary for characterization purposes. Each sample will be analyzed for total silver and/or for silver content in leachate using the Toxicity Characteristic Leaching Procedure (TCLP).

A representative sample will be collected from the concrete pad for characterization purposes. This sample will be analyzed for total silver and/or for silver content in leachate using the TCLP.

A representative composite grab sample will be collected for characterization purposes from each 20-cubic-yard batch of soil removed from the earthen berms surrounding the TTF. Each sample will be analyzed for total silver.

Representative samples of soil will be collected from the area beneath the concrete pad and from the areas surrounding the earthen berm after the pad and berm are removed to demonstrate clean closure. Each sample will be analyzed for total silver.
~~This section describes the procedures for collecting both random wipe samples and random soil composite samples.~~

~~The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.~~

~~Table 5~~
~~Thermal Treatment Facility~~
~~Summary of Random Sampling Program~~

~~WMA~~	~~Grids[a]~~	~~Wipe Samples per Grid~~	~~Soil Samples per Grid~~	~~Indicator Parameters[b]~~	~~Closure Standard[c, d]~~
~~TTF~~	~~Burn Pan~~	~~1~~	~~N/A~~	~~Silver~~	~~7,839 µg/m^2~~
	~~Steel Lining on Concrete Pad~~	~~1~~	~~N/A~~	~~Silver~~	~~7,839 µg/m^2~~
	~~Berm~~	~~N/A~~	~~2~~	~~Silver~~	~~1.0 mg/kg~~

~~[a] Refer to Figure 10 for locations of sample grids.~~

~~[b] Silver has been selected as the indicator constituent to demonstrate clean closure at the TTF; see section 7.5.3 for additional information.~~

~~[c] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.~~

~~[d] Soil closure standard based on the NMED-approved background concentration for silver in surface soils in the "Southwest Super Group" area of KAFB (which includes SNL/NM Tech Area III). Letter from Robert S. Dinwiddie of NMED to Michael Zamorski of DOE/KAO, dated September 24, 1997.~~

~~Table 6~~
~~Thermal Treatment Facility~~
~~Example Random Sample Locations~~

~~WMA~~	~~Grid~~	~~Xmin, Xmax (inches)~~	~~Ymin, Ymax (inches)~~	~~Random X-coordinate (inches)[a]~~	~~Random Y-coordinate (inches)[a]~~
~~TTF~~	~~Steel Lining on Concrete Pad~~	~~1 – 168~~	~~1 – 168~~	~~97~~	~~45~~
	~~Burn Pan~~	~~1 – 30~~	~~1 – 30~~	~~6~~	~~3~~
	~~Berm 1 (first sample)~~	~~1 – 210~~	~~1 – 84~~	~~101~~	~~31~~
	~~Berm 1 (second sample)[b]~~	~~1 – 210~~	~~1 – 84~~	~~20~~	~~21~~

~~[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.~~
~~[b] As shown on Figure 10, there are no wall samples taken from the on the steel-lined concrete pad and the burn pan in the TTF.~~

~~Dry wipe sampling will be conducted in accordance with the following procedures:~~

- ~~Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 6. Using these coordinates as the center point, delineate a 1 square foot area around this point.~~

- ~~Don clean, dry, lightweight cotton gloves.~~

- ~~Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.~~

- ~~Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.~~

- ~~Repeat until all floor grids have been wipe sampled.~~

~~Random soil samples will be obtained in accordance with the following procedure:~~

- ~~Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 6.~~

- ~~Don clean, dry, lightweight cotton gloves.~~

- ~~At each (x,y) coordinate location, samples will be collected to a depth of 6" using a clean, unused trowel, hand shovel, or scoop.~~

- ~~Place the sampled in a clean, unused metal tray or bowl and mixed thoroughly to homogenize the sample prior to placement in sealed and pre-cleaned labeled containers.~~

- ~~Repeat until all random soil samples have been obtained.~~

7.5.2.3 Sampling Equipment

Samples of the TTF components will be collected, as necessary, using appropriate equipment (e.g., metal cutters). Samples of the concrete underlying the Unit will be collected using appropriate equipment (e.g., a chisel or hammer). Samples will be placed in pre-cleaned wide-mouth glass jars with screw top lids, or other approved containers that are appropriate for the material and the analysis.

Soil samples will be collected with a disposable scoop, trowel, or equivalent sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

7.5.2.37.5.2.4 *Sample Equipment Decontamination*

Pre-cleaned and prepared sample containers will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., metal cutters, chisels, hammers, scoops, trowels) willis not be required for the wipe sampling procedures used in this closure. AtFor each soil sample location, new disposable sampling equipment will be used to prevent the possibility of cross-contamination between sample locations, and to eliminate the need for decontamination.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.4Sample Documentation and Custody

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Preservation method
- Analysis required

A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., soil batch, Unit componentfloor, west wall, etc.), the grid number, the sample type (random, or bias, composite), and any additional information that may be necessary. As an example, the sample numbered TTF-PANPAD-RANDBIAS-SOIL-01 would indicate thea random biased soil sample taken from beneath the burn pan gridconcrete pad at the TTF.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., . For example, the recommended maximum holding time for metals silver analysis is 180 days6 months from sample collection until extraction).

7.5.2.7Waste Management

Minimal quantities of waste will be generated through the sampling procedures at the TTF, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the TTF will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

7.5.3 Demonstration of Clean Closure

The following presents the criteria that will be used to evaluate characterization samples and to demonstrate that clean closure has been achieved for the TTF. Silver has been selected as the indicator parameter to evaluate characterization samples and to demonstrate clean closure, as it is the only constituent of concernhazardous waste constituent remaining in the ash after treatment occurs at the TTF.

All components of the TTF (the concrete pad and above) will be removed. The components of the TTF will either be recycled, or characterized to determine if they are hazardous waste, or declared to be hazardous waste (D011, due to the potential deposition of silver), and will be managed appropriately. In the second case, the characterization will be based on analytical results. If the total silver concentration(s) is less than 100 milligrams per kilogram (mg/kg), or if the TCLP silver concentration(s) is less than 5 milligrams per liter (mg/L), the components are not RCRA-regulated waste. (Note that the TCLP silver concentration that is the basis for a hazardous waste determination cannot exceed the regulatory threshold if the total silver concentration is less than 20 times the threshold).

Results from initial wipe sampling of the burn pan and steel-lined concrete pad at the TTF will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If wipe sampling results for the selected indicator parameters are lower than the

~~associated cleanup level, as presented in Table 5, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria. If the wipe sample results are greater than the cleanup level, surface contamination is indicated, and the grid area represented by the sample will be decontaminated in accordance with Section F.5.3 of the site-wide Closure Plan~~.

Total silver concentrations (determined by analysis) ~~Results~~ from ~~initial soil~~characterization sampling of the soil comprising the earthen berm will be compared to the most current residential ~~background~~ soil screening level (SSL) ~~samples~~ for silver~~SNL Tech Area III~~ (NMED 2004~~1997~~). The current residential SSL is 391 mg/kg (NMED, 2004). If ~~soil~~ characterization sampling results are equal to or lower than the SSL~~background cleanup level~~, ~~as presented in Table 5,~~ soil contamination is not indicated, and the soil will be made available for reuse on site~~grid area represented by the sample will be considered to have met the closure criteria~~. If the ~~soil~~ characterization sampling~~e~~ results indicate the silver level is equal to or exceeds the SSL~~background level~~, the subject batch(es) of soil will be further evaluated to determine appropriate management requirements. The soil will be excavated and removed, or a risk assessment will be performed to demonstrate that remaining silver does not pose a potential unacceptable risk to human health or the environment.~~contamination is indicated, and the grid area will either undergo additional sampling to delineate the extent of contamination, or the soil will be removed for disposal and the area will be re-sampled to verify closure performance standards have been met~~.

Soil beneath the concrete pad will be evaluated in the same manner as the soil comprising the earthen berm. Analytical results for silver will be compared to the most current residential SSLs, and the soil will be managed accordingly. The soil comprising the berm and the soil under the concrete pad will be excavated as needed until the remaining soil contains silver at levels below 391 mg/kg or the most current residential SSL for silver.

7.5.4 Quality Control

~~Quality control (~~QC~~)~~ for ~~wipe~~ sampling and analysis at the TTF will be implemented as described in Section F.6 of the site-wide closure plan. ~~to ensure that the data collected provides useful information to document clean closure of the Unit. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.~~

~~The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:~~

- ~~Blank Spike Analysis – The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameter (silver) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.~~

~~Method Blank – An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures. Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.~~

~~QC for random soil sampling will be in accordance with the analytical laboratory's internal quality control requirements.~~

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.~~Initial data reduction and validation will be done by the laboratory contracted to analyze the samples. The laboratory will report the data in accordance with their internal quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.~~

~~Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.~~

7.6 Characterization ~~Decontamination~~ Procedures

Section F.5.2~~3~~ of the site-wide ~~C~~closure ~~P~~plan ~~in Appendix F~~ presents general ~~decontamination~~ procedures applicable to all ~~RCRA-regulated waste management~~ Units at the SNL/NM facility. Prior to closure, this Unit-specific ~~Closure P~~plan will be updated as necessary to incorporate new or improved ~~decontamination practices~~ characterization practices or technology. Any revisions to this Unit-specific ~~Closure P~~plan will be submitted to NMED for approval prior to initiation of closure activities at the TTF.

7.7 Contingent Post-Closure Care

The intent of the site-wide and Unit-specific ~~C~~closure ~~P~~plans is to establish procedures for clean closure of ~~RCRA-regulated waste management~~ permitted Units used for management of RCRA-regulated wastes. It is expected that the closure activities described herein will successfully remove ~~or decontaminate all RCRA-regulated constituents~~ silver from the Unit and surrounding soils. In the unlikely event that soil contamination remains upon completion of closure activities at the TTF, Sandia/DOE will prepare a post-closure plan to address this contamination in accordance with 20 NMAC 4.1.500/40 CFR 264.118.

8.0 TREATMENT PLAN

In accordance with 20 NMAC 4.1.900/40 CFR 270.23 [~~6-14-00~~10-1-03], treatment operations for RCRA-regulated wastes treated at the TTF are described in this section. Waste analysis procedures are provided in Appendix B (Section B.3.2 and Section B.3.3) of the General Part B.

8.1 Treatment Operations

The treatment is designed to deactivate the reactive and ignitable components of the wastes. Thermal treatment is an accepted treatment technology for the deactivation of explosive wastes (20 NMAC 4.1.800/40 CFR 268.40 [~~6-14-00~~10-1-03]) to meet treatment standards. The wastes may also contain pentaerythritol tetranitrate (PETN, an explosive); however, PETN is rarely used in the process. PETN and SASN both exhibit the hazardous waste~~RCRA~~ characteristic of reactivity (D003). The treatment also effectively deactivates the ignitable (D001) components in the SASN slurry and liquid wastes. The residue may require further treatment to address other constituents, as discussed in Section B.3.3.1 in Appendix B of the General Part B.

The wastes treated at the TTF are~~is~~ typically generated as a result of the formulation of SASN slurry, its application to test articles, and ~~post-test~~ cleanup activities during and after the tests. The tests typically take one to three days, and wastes are generated and treated intermittently during this period. Liquid RCRA-regulated wastes are~~is~~ generated from the formulation and application of SASN slurry. Solid RCRA-regulated wastes (e.g., ~~paper~~ wipes, ~~cotton~~ rags, swabs, filter elements, cardboard masks, wood, and inert test debris) are~~is~~ generated as a result of ~~post-test~~ cleanup~~,~~ during and after the tests~~which may occur the day after formulation~~. The solid items are typically saturated with water to protect personnel from explosive hazards.

According to published technical data (Wildin, 1986), SASN can be initiated by the energy of bright light (by raising the surface temperature of the SASN to the auto ignition temperature of 457 ºF) or small contact shock. The TTF was specifically built to treat SASN slurry and SASN contaminated waste because of the hazards associated with handling the waste.

A description of the TTF burn pan design, construction, and materials is provided in Section 1.1 of this module to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.23(a) [~~6-14-00~~ 10-1-03]; and 20 NMAC 4.1.500/40 CFR 264.601 [~~6-14-00~~10-1-03].

Prior to treatment operations (treatment of wastes in conjunction with a test), TTF personnel perform a pretreatment inspection of the Unit as described in Section 4.0 of this module. During treatment operations, Unit personnel have immediate access to a telephone ~~or two-way radio~~ to summon help, if needed, as described in Section 6.0 of this module.

8.1.1 Waste Quantities

The TTF is limited to the treatment of the following quantities of reactive wastes during treatment operations:

- The maximum net explosive weight of explosive treated during any treatment operation will not exceed 2.4 pounds (1.092 kilograms).

- The maximum total volume of SASN-contaminated wastes (solid and liquid combined) present in the burn pan at any time will not exceed 20.8 gallons (78.7 liters), the capacity of the burn pan.

- The maximum total mass of wastes (solid and liquid combined) present in the burn pan at any time will not exceed 190 pounds (86 kilograms).

If more restrictive conditions are imposed by the annual Open Burn Permit issued by the Albuquerque/Bernalillo County Air Quality Control Board (A/BCAQCB), those conditions will be followed. The Open Burn Permit and conditions are described in Section 8.1.4.

8.1.2 Operations

~~Waste treatment at the TTF will generally occur on the same day that the RCRA-regulated waste is generated in Building 6715.~~

Liquid waste is generally pumped to the TTF utilizing a remotely-operated peristaltic pump that is located inside the area where SASN is formulated and used. The waste is transferred to the TTF burn pan via flexible hoses and metal tubing that lead into the burn pan. RCRA-regulated waste that cannot be pumped to the TTF (solid items) is first wetted with water to temporarily reduce the explosive sensitivity and then hand carried in appropriate containers and manually placed or poured into the burn pan by qualified personnel, using extreme care to prevent spills. TTF personnel are required to wear appropriate personal protective equipment when performing treatment operations.

After the waste is pumped and/or manually placed or poured into the burn pan, all open TTF gates are closed and locked and the door to the TTF is closed remotely. Transfer of liquid waste to the TTF can be accomplished remotely, without opening the TTF door or accessing the fence gates. The burn pad lid remains closed as much as possible except during loading and combustion to minimize evaporation of volatile waste.

The area between the TTF north fence and Building 6715 is cleared of all personnel by announcing over the public address system that treatment operations will soon commence. The TTF is controlled from the console inside Building 6715. Propane burners are pre-positioned to both heat the burn pan and ignite the contents; this is necessary to vaporize water-bearing wastes so that the explosive component can be treated effectively. The burn pan lid is raised if needed and the burners are ignited and operate until combustion is complete. To provide additional assurance of complete treatment, personnel typically operate the burners for a period of time (typically 30 to 60 minutes) after the last treatment of the day is complete (i.e., all the explosives are deactivated and the ignitable liquids are combusted). Unit personnel use visual and audible evidence to determine treatment completion. Evidence of complete deactivation of explosives is the cessation of audible popping noises and visual flashes of light and/or puffs of smoke. Evidence of the complete combustion of ignitable liquids includes the absence of large yellow flames from the burn pan and absence of liquid inside the burn pan. After treatment and/or the post-treatment burn are complete, Unit personnel turn off the propane burners and lower the lid to preclude wind dispersal of treatment residue and water infiltration into the burn

pan during the cool-down period. The cool-down period varies, but generally will not exceed 24 hours.

After the cool-down period, Unit personnel perform a post-treatment inspection to identify any untreated waste in the burn pan and contamination and/or "kick~~-~~out" on the steel-lined concrete pad. Kick~~-~~out is defined as untreated RCRA-regulated waste ejected from the burn pan during treatment. Kickout has occasionally been observed during treatment, and particles of untreated waste have been observed on the steel-lined concrete pad during post-treatment inspections. If any kick~~-~~out is observed~~identified~~, Unit personnel wet it with water, wipe it up with wet paper wipes, and place the wet wipes in~~return it to~~ the burn pan for treatment. Untreated waste remaining in the pan and kick~~-~~out returned to the burn pan are subsequently retreated. If the inspection indicates that all the waste has been treated, personnel remove the contents of the burn pan (i.e., all loose residue~~ash~~) ~~are removed~~using plastic scoops or a vacuum cleaner equipped with a high-efficiency particulate air filter. Personnel then lower the lid to minimize ash dispersal. The residue is~~,~~ containerized, ~~managed, and~~ characterized as described in Section B.2.5~~3.3~~.1 of the WAP (Appendix B), and managed appropriately. ~~If the post-treatment inspection identifies contamination on the steel-lined concrete pad, it will be wetted with water, decontaminated by wiping with wet paper wipes, and the wipes will be treated at the TTF.~~

Following the post-treatment inspection and ash removal, Unit personnel may perform an additional review, checking the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner to determine whether small quantities of additional kickout (small particles that are not visually observed during the post-treatment inspections) are present. Visible kickout identified during this review will be collected as described above and treated in the burn pan.

8.1.3 Operating Conditions

To minimize air emissions or exposure of people to toxic or hazardous air emissions, the TTF will be operated only:

- Between the hours of 7 a.m. and sunset. Operations may extend beyond sunset if necessary to complete treatment and post-treatment burn of the wastes in the burn pan.
- When the wind speed is less than or equal to 20 miles per hour (mph).
- When threatening weather is less ~~more~~ than 10 miles (mi) from the TTF. Threatening weather is defined as winds in excess of 35 mph; tornadoes; electrical storms with or without precipitation of any type; snow storms with a visibility of less than 2000 feet; rain with accumulations greater than 0.3 inch per hour; or any hail, sleet, or ice storms.

~~8.1.4~~8.2 Preventing Releases to the Atmosphere ~~(20 NMAC 4.1.900/40 CFR 270.14[b][8][vi]; 20 NMAC 4.1.500/40 CFR 264 Subparts AA, BB, and CC)~~

TTF personnel employ the practices described in Section 8.2 of the SNL/NM General Part B to prevent releases to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

TTF treatment operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

8.2.2 Subpart BB

TTF operations involve a pump and transfer lines in light organic service. These are used less than 300 hours per calendar year and are therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of the equipment will be maintained in the Unit records, as described in Section 9.0 of the General Part B. Hours of operation will also be noted in the Unit records.

The TTF is subject to the regulations of the A/BCAQCB. Open burning of high explosives is allowed under A/BCAQCB Regulation Number 3 when transporting the material would be unnecessarily hazardous. The TTF is granted a permit for open burning of explosives by the City of Albuquerque on an annual basis. Treatment will be restricted to the open burning conditions imposed by the most current City of Albuquerque Open Burn Permit.

8.2.3 Subpart CC

TTF treatment operations do not include management of RCRA-regulated wastes in containers subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC.

8.28.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

The thermal treatment of RCRA-regulated waste at the TTF is completely effective in deactivating explosive and ignitable constituents in the wastes. The auto ignition temperature of SASN is 457 degrees Fahrenheit (°F). Propane, used to ignite the waste, has a flame temperature of 3500°F. The TTF burners are operated for a minimum of 30 minutes after there is no visual (sparks) or audible evidence of untreated explosive waste remaining in the burn pan. No waste explosives have been observed in the treated TTF ash.

Given the extremely high vapor pressure and low flash points of ignitable solvents (e.g., acetone, acetonitrile) that may be treated at the TTF (the flash point of acetone is 15°F and the flash point of acetonitrile is 35.6°F), it can be concluded that the materials are completely burned and decompose to gaseous by-products and ash.

The principal by-products of combustion of liquids and solids treated at the TTF are ash (carbon), gases, and silver. Gases consist primarily of nitrogen, water vapor, carbon dioxide, carbon monoxide, sulfur dioxide, diatomic oxygen, and traces of nitrous oxides. Treated residues (ash) are managed in accordance with applicable RCRA requirements and characterized in accordance with Section B.3.3.1 of the sSite-wWide WAP (Appendix B).

Some evidence of occasional kickout during treatment has been observed. In such cases, Unit personnel remove the kickout and treat it in the TTF as described in Section 8.1.2.

9.0 ENVIRONMENTAL PERFORMANCE STANDARDS FOR THE MISCELLANEOUS UNIT

The TTF will be operated, maintained, and closed in a manner that will ensure protection of human health and the environment, in accordance with 20 NMAC 4.1.500/40 CFR 264.601 [~~6-14-00~~10-1-03]. The Unit is located in a sparsely populated area, and is designed and operated to facilitate safe handling and treatment of RCRA-regulated wastes in order to prevent adverse impacts to human health and the environment. The Unit features, small quantities of waste treated, and operating requirements minimize the potential for a release. Operations, including hazard prevention features and practices, are described in Sections 1.2 and 8.1 of this module. Contingency and emergency response actions to minimize impacts of unanticipated events, such as spills, are described in Section 6.0 of this module. Treatment operations and effectiveness are described in Sections 8.1 and 8.2 of this module.

In conformance with 20 NMAC 4.1.500/40 CFR 264.601 [~~6-14-00~~10-1-03], a miscellaneous hazardous~~RCRA-regulated~~ waste storage, treatment, or disposal facility must be shown to prevent any releases to groundwater, surface water, soil, or air that may have adverse effects on human health and the environment. The TTF has been designed and is operated in such a manner as to meet these requirements, as described below.

9.1 Characteristics of the Waste and the Unit (20 NMAC 4.1.500/40 CFR 264.601[a][1], [b][1,2], and [c][1-3])

Sandia/DOE assessed the potential risk to human health and ecological receptors due to operation of the TTF under the conditions described in this module. The chemicals of potential concern (COPCs) and Unit features are summarized below.

9.1.1 Waste Characteristics

Waste quantities are discussed in Section 8.1 of this module. The RCRA-regulated wastes treated at the TTF consist of the following:

- A liquid or slurry containing varying amounts of acetone, acetonitrile, nitric acid, water, and typically some SASN crystals. The liquid or slurry may also contain PETN.

- Solid items ~~that may~~ containing or coated with ~~small quantities of~~ SASN, such as ~~including~~ paper wipes, cotton rags and swabs, filter elements, test debris (pieces of wood and metal), incidental silver nitrate that did not react to form SASN, and traces of Viton™ fluoroelastomer.

The estimated quantity of waste generated by testing operations is based on individual batches of SASN. Table ~~7~~ 5 summarizes the COPCs in the wastes treated at the TTF.

Table ~~7~~5
Estimated Maximum Quantities of Constituents in SASN Wastes

Constituent	Approximate quantity in wastes from cleanup of aborted test using four batches of solution
Acetone	~~65~~80 L [a, b]
Acetonitrile	6 L [b]
Nitric acid	0.25 L [c]
Silver nitrate	Trace [c]
SASN	1.092 kg [d]
PETN (optional)	0.04 kg [d]
Water	50~~20~~ L
Solid items (e.g., paper, cloth, wood, cardboard)	50 kg

[a] In normal operations, some ~~most~~ of the acetone would be applied to the test article, ~~and~~ some would be used to flush lines, and approximately 25L of acetone would be present in the solution to be treated at the TTF.
[b] A solvent used in the formulation of the SASN slurry. Most or all of the material may be present in the waste from normal operations and from aborted tests.
[c] A byproduct generated in the formulation of the SASN slurry. Nitric acid will be present in the waste from normal operations and from aborted tests.
[d] In normal operations, all the explosive would be applied to the test article, and a trace would remain in the solution to be treated at the TTF. Some explosive would also be present on the solid items treated.
kg kilogram
L liter

Most test operations will require at least two batches of SASN; the largest may require four batches. PETN is used on rare occasions. Normal test operations result in a mixture containing ~~nitric acid, some~~ acetone, water, nitric acid, acetonitrile, and traces of silver nitrate and SASN that requires treatment at the TTF. Aborted tests may result in the entire quantity of formulated SASN requiring treatment in addition to the normal wastes. The latter situation is shown in Table ~~7~~5.

Of the COPCs identified above, silver is the only COPC remaining in the ash after treatment at the TTF. ~~There are limited A~~analytical data for residual ash from ~~the~~ TTF operations during 2004 indicate~~. For the analytical data available~~ (a total of 2~~5~~ samples), silver was detected at a maximum concentration of 550~~140~~ milligrams per kilogram (mg/kg). Sandia/DOE used this concentration as the exposure point concentration when considering direct contact in the human health screening evaluation.

9.1.2 Unit Features

The TTF is described in Section 1.1 of this module. It is comprised of a steel burn pan with a cover, located inside a steel cage. The cage and burn pan rest on a steel-lined concrete pad. The cage and pad are surrounded by an earthen berm.

~~Seven~~ Eight situations present the potential for the release of RCRA-regulated waste to the environment surrounding the TTF. Each situation is addressed below:

- *Transfer of liquid wastes to the TTF burn pan*. Liquid wastes are transferred to the Unit through enclosed tubing equipped with secondary containment. No more than 20.8 gallons of liquid wastes are present in the Unit at any time, limiting the maximum release to 20.8 gallons. Spills on the ground or on the TTF pad will be wetted with water using spray hoses. When saturated with water, the explosive waste is stable. The spilled, wet waste can then be wiped or scooped up and deposited in the burn pan for destruction. Similarly, contaminated soils will be wetted, excavated, and placed in the TTF burn pan for treatment.

- *Transfer of solid items to the TTF burn pan*. Solid items such as explosive-contaminated paper and filters are contained and carried to the TTF burn pan by qualified Unit personnel. Solids that are spilled during transfer would be handled in the same manner as described above for liquids.

- *Runoff of potentially contaminated precipitation*. Once waste is transferred to the burn pan, treatment generally takes place immediately. In the unlikely event of spillage from the burn pan, waste material will be contained on the steel-lined concrete pad. Any precipitation or spillage in the steel-lined concrete pad drains through a settling basin and filter into the 157-gallon catch tank. In addition, no untreated waste or treated residue is allowed to remain for extended periods of time in the burn pan,

- *Discharge of potentially contaminated precipitation from the catch tank*. Water collected in the catch tank is managed as described in Section 1.2.1 of this module.

- *Evaporation of liquid wastes from the burn pan*. Untreated wastes are not allowed to remain for extended periods in the burn pan, and treatment generally takes place immediately during normal operations. If treatment cannot be performed, the burn pan lid is lowered. During treatment, the high vapor pressure and low flash point of the organic liquids in the waste, combined with the burner design (Section 1.1), maximize the destruction of organic constituents through combustion.

- *Emission of particulates and gaseous combustion products during treatment*. Combustion products are described in Section 8.2. Products of complete combustion include nonhazardous gases. As noted above, the high vapor pressure and low flash point of the organic liquids in the waste, combined with the burner design (Section 1.1), maximize combustion performance.

- *Kickout of untreated waste during treatment*. Kickout (described in Section 8.1.2) may occur, and has been occasionally observed on the steel-lined concrete pad. Kickout on the pad is identified during the post-treatment inspection, wetted, wiped up, and placed in the pan for treatment. Kickout on the berm would be handled in the same manner as described above for spilled liquids.

- *Emission of particulates following treatment*. Ash and particulate matter (residues) from the thermal treatment process are removed from the burn pan as soon as possible, and the pan is covered between treatment.

9.2 Potential for Deposition or Migration of Wastes or Waste Constituents (20 NMAC 4.1.500/40 CFR 264.601[a][7])

The potential for release of COPCs to the soil is directly associated with the operations and residual waste at the TTF. COPCs may be released to the surface soil as a result of wind-blown ash deposition. Wind can transport ash particles with adsorbed COPCs (silver) as suspended dust, capable of dry or wet deposition away from the site. The site is sparsely vegetated, and is susceptible to wind and water erosion. Surface runoff and biota are natural, but minor mechanisms of COPC transport. Water percolation through the soil is the primary mechanism for the transport and migration of COPCs in the subsurface soil and into groundwater.

It has been estimated that loss through evapotranspiration accounts for 95 percent of the total precipitation received at SNL/NM (Thomson and Smith 1985). Vegetation, although sparse at the site, will increase the rate of moisture loss from the subsurface soil through transpiration. As moisture evaporates from the soil surface, the direction of COPC movement near the surface may be reversed (i.e., upward transport) with capillary rise of the soil moisture.

Because of the arid nature of the environment at the TTF, characterized by low precipitation and high evapotranspiration rates, recharge to the water table at TA-III (measured at a solid waste management unit in north central TA-III) is insignificant under current climatic and vegetative conditions (Peace et al., 2002). Because groundwater at the TTF is approximately 500 feet below ground surface, the potential for COPCs to reach groundwater through the unsaturated zone above the water table is very low and can be ruled out as a transport pathway of concern.

Plant roots can access COPCs that are in the soil solution and transported to the aboveground tissues with the xylem stream. This may be a passive process, but active uptake (i.e., requiring energy expenditure on the part of the plant) or exclusion of some constituents in the soil solution may also take place. Aboveground tissues can absorb constituents directly from the air or by contact with dust particles. Constituents in plant tissues that are consumed by herbivores may pass through the gut and be returned to the soil in feces (at the site or transported from the site in the herbivore), or be absorbed into tissues, to be held, metabolized, or later excreted. The herbivore may be eaten by a primary carnivore or scavenger, and the constituents still held in the consumed tissues will repeat the sequence of absorption, metabolization, excretion, and consumption by higher predators, scavengers, and decomposers. The potential for transport of the constituents within the food chain is dependent upon both the mobility of the species that comprise the food chain and the potential for the constituent to be transferred across the links in the food chain. Inorganic COPCs (silver) at the TTF are elemental in form and are, therefore, not considered to be degradable via biotic or abiotic processes.

Table 6~~8~~ summarizes the fate and transport processes that may occur at the TTF. Because the topography of the site is relatively flat and maintained for treatment operations, the potential for surface-water transport is low. Because winds in the Albuquerque area can be fairly strong in late winter and early spring, the potential for transport of COPCs in surface soil by wind is moderate. In both cases, however, the significance of these transport mechanisms is lessened by the fact that the principal COPC that would be released (i.e., silver) has been and is expected to be present in the residual ash at low initial concentrations. Because of the arid nature of the climate at the site, significant movement of water through the subsurface soil is unlikely and migration to groundwater is not expected to occur. The potential for food chain uptake is low because of the small size of the site, the disturbed nature of the habitat, and the

continued operations at the site. The potential for degradation is minimal due to the elemental and inorganic nature of the COPC (silver).

Table 68
Summary of Fate and Transport Mechanism at the TTF

Fate and Transport Mechanism	Existence at Site	Significance
Wind	Yes	Moderate
Surface runoff	Yes	Low
Migration to groundwater	No	None
Food chain uptake	Yes	Low
Transformation/degradation	No	None

9.3 Potential Risks to Human Health (20 NMAC 4.1.500/40 CFR 264.601[a][8], [b][10], and [c][6])

Sandia/DOE performed a screening human health risk assessment to estimate the potential risk to human receptors that may be exposed to residual COPCs at the TTF under the proposed operating conditions. The assessment indicates that exposure to the COPCs at the TTF poses no significant human health risks under current and anticipated future conditions, as discussed in the following sections. The assessment was performed in accordance with the "Risk Assessment Guidance for Superfund" (RAGS) (EPA, 1989) and "Technical Background Document for Development of Soil Screening Levels" (NMED, 2004~~0~~).

9.3.1 Receptors

Building 6715 is occupied during research activities, and may be continuously occupied for several weeks or months, depending on the test schedule. Six buildings are occupied on a regular basis within the vicinity of the TTF. The remaining buildings are used sporadically for other tests or research activities, in the same manner as Building 6715. Table 7~~9~~ summarizes the occupants of the TTF and the full-time occupants near the TTF.

The occupants of surrounding buildings are upwind from the TTF for a large percentage of the time. The wind rose on Figure 5 shows that overall prevailing winds at the TTF are from the east to southeast. However, winds in the area exhibit a diurnal pattern as described in Section 2.6: nighttime winds are from the southeast, and daytime winds are generally from the northwest to southwest (SNL, 2004~~2~~). The daytime winds are reported in Table 7~~9~~, because the buildings are occupied during the daytime.

Table 79
Full-Time Occupants of Buildings Near TTF in TA-III at SNL/NM

Building	Distance From TTF (feet)	Direction From TTF	Number of Full-time Occupants	Approximate Percent of Time Downwind from the TTF [a]
6715	20	N	10 [b]	5-106
6585	1250	E	152	5-109
6584	950	E	59	5-109
MO-228	1050	ESE	12	8
6536 [c]	795	SE	5	5-10
6530	820	SE	1	5-10
6710	1080	SW	8	2-1211
6539 [d]	470	E	8	5-10

[a] Based on prevailing winds during daylight hours, based on data from 2001-2003. Range indicates some variation from year to year.
[b] The TTF may or may is not be continuously occupied. P, but personnel who are present during tests and treatment have the highest potential for exposure
[c] Building is scheduled to be demolished by September 30, 2006.
[d] Building is scheduled to be operational by September 30, 2006.

9.3.2 Methodology

To evaluate potential human health risk at the TTF, maximum exposure point concentrations of the residual ash COPCs were compared to the corresponding occupational NMED soil screening levels (SSLs) (NMED, 20040). An individual SSL represents the soil concentration below which no significant adverse health effects are expected to occur from the assumed soil exposure pathways. The SSLs are fixed to conservative levels of risk (i.e., a cancer risk of 1×10^{-05} or a hazard quotient of 1.0). For metals and high explosives, the SSL uses three exposure pathways in the risk calculations:

- Incidental ingestion of chemicals in soil
- Dermal contact with chemicals in soil
- Inhalation of fugitive dust from soil.

The modeled duration of exposure assumes a continuous exposure during a 40-hour work week, 50 weeks each year, for a 25-year period.

The proposed current and future land use at the TTF is occupational under operating conditions. In addition, the onsite occupational receptors are not expected to exceed 50 days per year operational use at the TTF (i.e., the actual annual exposure period is less than 20% of the modeled exposure). Therefore, use of the occupational SSLs to calculate potential risk is highly conservative. Groundwater is not considered a viable exposure medium due to due the limited potential fate and transport soil-to-groundwater mechanisms operating at TA-III. Vapors released during treatment operations at the TTF do not to significantly contribute to the operational risk due to the following factors:

- The short duration of TTF treatment operations.
- The majority of the COPCs are incinerated during treatment.
- The treatment takes place outdoors and, therefore, the remaining vapors are quickly dispersed.
- Unit personnel are inside Building 6715 during treatment.
- Building 6715 is upwind from the TTF most of the time (Table 79).
- The nearest continuously-occupied building other than Building 6715 is 470795 feet away from the TTF and is upwind most of the time (Table 79).

A hazard quotient (HQ) can be estimated using an exposure point concentration and a respective non-carcinogenic SSL, according to the following formula:

$$HQ = THQ \frac{EPC_i}{SSL_i}$$

Where:

- THQ = The target hazard quotient of 1.0
- EPC_i = Maximum exposure point concentration of $COPC_i$ detected in soil (mg/kg)
- SSL_i = Occupational SSL for $COPC_i$ detected in soil (mg/kg) based upon non-carcinogenic effects

None of the COPCs at the TTF are carcinogenic; therefore, no estimation of incremental lifetime cancer risk was conducted.

9.3.3 Results

Table 810 summarizes the COPC HQ values, based on comparing the maximum exposure point concentrations with the occupational SSLs.

Table 810
Results of the Human Health Risk Screening Analysis for the TTF

COPC	Occupational NMED SSL (mg/kg) [a]	Concentration (mg/kg) [b]	Hazard quotient	Incidental lifetime cancer risk
Silver[n]	5681200	140550	0.102	NA

[a] NMED 20040.
[b] concentration at point of maximum exposure, assuming direct contact
mg/kg milligram per kilogram.
n Non-carcinogenic metal.
NA Not applicable.

This screening human health risk assessment indicates the maximum concentration of silver in residual ash does not pose a potential significant risk to human health. The HQ calculated is 0.102, which is significantly less then the screening criteria of 1.0.

As noted in Section 9.3.2, the actual risks presented by treatment at the TTF and the residual ash are significantly less than those calculated due to the limited actual use of the TTF (i.e., it is only used 50 days per year, and the actual annual exposure is less than 20% of the modeled exposure). Therefore, under current and anticipated future conditions, exposure to COPCs at the TTF poses no significant human health risks.

9.4 Potential Damage to Animals, Vegetation, and Physical Structures (20 NMAC 4.1.500/40 CFR 264.601[a][9], [b][11], and [c][7])

Sandia/DOE evaluated the risk and potential damage to animals and vegetation through a screening ecological assessment, which examines the potential presence of endangered or threatened species at or around the TTF. The assessment indicates the expected impact of the TTF is minimal. No sensitive species have been identified at the TTF. The habitat quality of the TTF is poor (due to industrial land use patterns in the surrounding area), indicating that future habitation by sensitive species is unlikely.

Damage to physical structures (primarily Building 6715) that are in close proximity to the Unit could be caused by detonation of the explosive wastes treated in the TTF. However, the potential for such damage is effectively minimized through the design and operation of the Unit (described in Sections 1.2 and 8.1 of this Module).

9.4.1 Ecological Screening Assessment

The screening ecological assessment is limited to the potential threatened or endangered (T and E) species that may occur within the vicinity of the TTF. It includes: summary of the threatened and endangered (T and E) species survey for SNL/NM; the ecological receptors found at SNL/NM; and a summary of the receptors found at TA-III and, more specifically, the TTF as reported in *Sensitive Species Survey Results* (IT, 1995).

9.4.2 Survey Description

Sandia/DOE conducted biological field surveys and reviewed previously documented surveys to identify the presence of sensitive species and key habitat areas at each of the SNL/NM solid waste management units (being addressed through the Sandia/DOE Environmental Restoration (ER) program) that are located within the boundaries of KAFB.

The term "sensitive species" is used in these surveys refers to all state or federally listed threatened or endangered species, proposed or candidate species, and other species afforded special management consideration, thereby providing that species legal protection from actions that may jeopardize its further existence, by a state or federal resource management agency (e.g., U.S. Forest Service [USFS] Sensitive Species). Both plant and animal species are included under this definition. The actual or potential occurrence of permanent or transient sensitive species populations with the vicinity of the TTF is discussed.

The current list of species that fall under the definition of sensitive and that may occur on KAFB was compiled from information obtained from the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF), and the New Mexico Forestry and Resource Conservation Division (NMFRCD) of the Energy, Minerals and Natural Resources Department. Federal protection of a species (plant or animal) principally falls under the jurisdiction of the USFWS, although special management status may be granted to a species by other resource management agencies, such as the USFS and the Bureau of Land Management. In New Mexico, the state agencies empowered to identify and protect sensitive biological resources are the NMDGF (for vertebrate wildlife and some invertebrates) and the NMFRCD (for plants).

Other species designations are also recognized through the listing process. Those that are considered sufficient to warrant inclusion as a sensitive species are proposed species, C1 candidate species, and C2 candidate species. A proposed species is one for which a proposal for listing has been published in the Federal Register, but a final rule on the listing has not yet been made. Candidate species are those that are under review for possible listing. The C1 classification means that the USFWS believes sufficient information exists to support listing. The C2 classification means that insufficient information currently exists to support listing.

Similarly, the New Mexico Wildlife Conservation Act authorizes the NMDGF to designate species of wildlife native to New Mexico as endangered, thereby granting the species protection from further threats to their continued existence in New Mexico. Under this authority, the NMDGF uses two levels of classification, endangered group 1, and endangered group 2, which are equivalent to the endangered and threatened classifications (respectively) of the USFWS. The NMDGF also designates certain species and groups of wildlife (e.g., raptors and horned lizards) as "protected"; however, this designation is directed at protecting individuals of these species from unregulated hunting, killing, trapping, capture, or harassment and does not carry with it the criterion of threat of extinction or extirpation.

The NMFRCD has the authority to designate and protect plant species and varieties that are threatened by extinction or extirpation in New Mexico. The NMFRCD maintains four lists of plant species, each representing a separate level of classification. List 1 plants are designated endangered in New Mexico and are legally protected from unauthorized collection. List 1 plants include all plant species in New Mexico that are listed by the USFS as endangered or threatened as well as other species that may be threatened with extirpation from the state.

List 2 plants are either rare throughout their range or have a very restricted range, making them vulnerable to environmental perturbations. Although List 2 plants are monitored for change in status, they are not protected under the New Mexico Endangered Plant Species Act. List 3 plants are rare plants that are currently under review for listing. List 4 plants are those that, after review, have been dropped from consideration at this time. As with the List 2 plants, neither List 3 nor List 4 plants are protected under the New Mexico Endangered Plant Species Act. Plants on the NMFRCD Lists 1, 2, and 3 are considered to be sensitive species because all are either known to be vulnerable to disturbance or are of uncertain sensitivity.

9.4.3 Receptors Found at SNL/NM

There are no federally listed T or E species known to occur within KAFB. The federally endangered peregrine falcon (*Falco peregrinus*) could potentially occur in the mountainous areas of KAFB; however, the likelihood is low due to poor habitat quality for this species. The federally threatened Mexican spotted owl (*Strix occidentalis lucida*) occurs in canyons similar to Sol se Mete and Lurance Canyons in eastern KAFB; however, a special survey of these canyons by Roger W. Skaggs found the habitat conditions to be unsuitable and concluded that the probability of this species occurring in these canyons is low. The federally endangered black-footed ferret (*Mustela nigripes*) was once native to central New Mexico but has not been recorded in the state in recent years.

Two candidate species (C2) for federal listing are known to occur on KAFB. These are the grama grass cactus (*Pediocactus papyracanthus*) and the Texas horned lizard (*Phrynosoma cornutum*). The grama grass cactus is also a State-listed endangered plant species (List 1) and a USFS sensitive plant and has been recorded throughout the lower elevations of KAFB, from the base of the Manzanita Mountains to the fence marking the western boundary of the base. The Texas horned lizard has been observed at the North Thunder Range and in Lurance Canyon. As a horned lizard, this species is protected by state law from collection but has no other state-granted special status.

Seven other federal candidate species are considered as potentially occurring on KAFB but have not been recorded on KAFB. These include three birds, three bats, and one rodent species. Three of these species, the southwestern willow flycatcher (*Empidonax traillii extimus*), the spotted bat (*Euderma maculatum*), and the "New Mexican" meadow jumping mouse (*Zapus hudsonius luteus*), are also listed by the NMDGF as endangered (group 2). All three of the birds -- the "Apache" northern goshawk (*Accipiter gentilis apache*), the ferruginous hawk (*Buteo regalis*), and the southwestern willow flycatcher -- are likely to be migrants on KAFB, if they occur at all. The northern goshawk typically nests at higher elevations and in denser coniferous forests than those provided by the Manzanita Mountains, although it winters at lower elevations, usually along riparian zones. Although a ferruginous hawk was observed soaring over the South Thunder Range during surveys, nesting, roosting, or feeding by this species on KAFB has not been observed. The lack of dense willow stands (which are the preferred nesting habitat for the southwestern willow flycatcher), makes it an unlikely breeding species on KAFB. The three species of bats listed as federal candidate species (C2) potentially use the mine shafts in the Manzanita Mountains as roosts, although the small number of records for the greater western mastiff bat (*Eumops perotis californicus*) in New Mexico make it very unlikely to occur in these mine shafts. The "New Mexican" meadow jumping mouse has been recorded along the Rio Grande and in higher montane meadows, but suitable habitat for this species (thick grass with high soil moisture) does not occur on KAFB.

Two species of birds, the gray vireo (*Vireo vicinior*) and Baird's sparrow (*Ammodramus bairdii*), are listed by the NMDGF as endangered (group 2) but have no federal status. A gray vireo was observed in Sol se Mete Canyon but was probably a migrant. Past observational records indicate that the Baird's sparrow is unlikely in the area of KAFB.

Three State-listed endangered plants (List 1) are known to occur on KAFB. These are the grama grass cactus, the Wright's pincushion cactus (*Mammillaria wrightii*), and the visnagita cactus (*Neolloydia intertexta*). Two other State-listed endangered plants, Simpson's cactus (*Pediocactus simpsonii*) and Great Plains lady tresses (*Spiranthes magnicamporum*), are possible but have not been recorded on KAFB. The latter, an orchid, is unlikely due to the rarity of moist habitats required for this species.

One State-listed rare and sensitive plant (List 2) is known to occur on KAFB, and two others may potentially occur. The Santa Fe milkvetch (*Astragalus feensis*) has been recorded in the North Thunder Range area. The cyanic milkvetch (*Astragalus cyaneus*) and Plank's catchfly (*Silene plankii*) are sporadic but locally common on dry slopes along the Rio Grande Valley. Neither has been observed on KAFB.

Finally, only one species under review by the NMFRCD (List 3) may potentially occur on KAFB. The strong prickly pear (*Opuntia valida*) occurs along the foothills of the Sandia Mountains and has typically been treated as a form of the common and highly varied Engelmann or "sprawling" prickly pear (*Opuntia phaeacantha*). Its taxonomic elevation to species is not widely accepted and requires further study. It has not been recorded on KAFB but may be easily overlooked due to the prevalence of Engelmann prickly pear.

9.4.4 Sensitive Species Found at TA-III

TA-III was surveyed for sensitive species during the spring and summer of 1992 and 1993. This survey effort included all ER Project sites that are within TA-III, as well as an area northwest of TA-III. Portions of the west central part of TA-III have been identified as Priority 1 habitat for grama grass cacti, indicating that the species occurs in vigorous populations in the area of TA-III.

Although no other sensitive species have been recorded on SNL/NM ER Project sites in TA-III, the potential occurrence of some cannot be ruled out. Among the plants, both the Santa Fe milkvetch and Simpson's cactus are possible in the habitats of the lower foothills and may have eluded detection. The Texas horned lizard, which has been recorded in Lurance Canyon, could occur in the grassland sites within this canyon and on the mesa. Finally, the abandoned mines in the eastern part of KAFB may contain bats, among which both the spotted bat and occult little brown bat are possible occupants. However, none of these are expected to occur at the TTF.

No sensitive species have been identified at the TTF. Additionally the habitat quality of the TTF is poor, indicating that future habitation by sensitive species is unlikely to occur. Therefore, a quantitative assessment of potential risk to ecological receptors at the TTF is not warranted at this time.

9.5 Monitoring (20 NMAC 4.1.500/40 CFR 264.601 - 602)

Sandia/DOE do not routinely perform environmental monitoring at the TTF because of the sporadic nature of the operations and the minimal effect of the operations on human health and the surrounding environment (discussed in Sections 9.3 and 9.4 of this module). However, as discussed in Sections 2.6 and 9.0, Sandia/DOE perform routine environmental monitoring in the vicinity of the TTF. The results of the activities are provided in annual environmental monitoring reports (SNL/NM 20042). Contamination attributable to the TTF has not been detected during environmental monitoring activities at SNL/NM.

10.0 REFERENCES

DOE, see U.S. Department of Energy

EPA, see U.S. Environmental Protection Agency.

Gram, Inc, 1995. "Conceptual Geological Model of the Sandia National Laboratories and Kirtland Air Force Base, Sitewide Hydrogeologic Characterization Project," Organization 7584, Environmental Restoration Program, Sandia National Laboratories, Albuquerque, New Mexico.

IT Corporation, 1995, "Sensitive Species Survey Results, Environmental Restoration Project, Sandia National Laboratories/New Mexico", IT Corporation, Albuquerque, New Mexico, February, 1995

National Oceanographic and Atmospheric Administration (NOAA), 1990. Local Climatological Data, Annual Summary with Comparative Data, Albuquerque, New Mexico.

New Mexico Environment Department (NMED), 1994, "Sandia National Laboratories/ New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-2," effective November 4, 1994, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, Santa Fe, New Mexico.

~~New Mexico Environment Department (NMED), 1997, "Request for Supplemental Information: Background Concentrations Report, SNL/KAFB", letter from Robert S. (Stu) Dinwiddie (NMED) to Michael Zamorski (DOE), dated September 24, 1997.~~

New Mexico Environment Department (NMED), 2004~~0~~. "Technical Background Document for Development of Soil Screening Levels, Revision 2.0" New Mexico Environment Department, Hazardous Waste Bureau, Ground Water Quality Bureau, and Voluntary Remediation Program, Santa Fe, New Mexico, February, 2004.

NMED, see New Mexico Environment Department.

NOAA, see National Oceanographic and Atmospheric Administration

Peace, J.L., Goering, T.J., and M.D. McVey, 2002. "Report of the Mixed Waste Landfill Phase 2 RCRA Facility Investigation, Sandia National Laboratories, Albuquerque, New Mexico". SAND2002-2997, prepared by Sandia National Laboratories for the U.S. Department of Energy under Contract DE-AC04-94AL85000.

Sandia National Laboratories, New Mexico (SNL/NM), 1998. "Sitewide Hydrogeologic Characterization Project 1995 Annual Report, Rev.", Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 1999. "Summary Report of Groundwater Investigations at TA V, Operable Units 1306 and 1307," Vol. 1 and 2, Prepared for the US Department of Energy Under contract DE-AC04-94AL85000, by Environmental Restoration for TAs and Miscellaneous Sites, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2001a. "Environmental Restoration Project, Sandia National Laboratories/New Mexico, in Association with The US Department of Energy Kirtland Area Office, Draft Long-Term Environmental Stewardship Plan". Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2001b. "Draft Long-Term Monitoring Strategy for Groundwater". Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2002, "Calendar Year 2001 Annual Site Environmental Report", SAND 2002-2415, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2003b, "Fiscal Year 2002, Annual Groundwater Monitoring Report" Report # 75-1077-5, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 20043a, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 75.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2004b, "Calendar Year 2003 Annual Site Environmental Report", SAND 2004-2813, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

Thomson, B.M. and G.J. Smith, 1985. "Investigation of Groundwater Contamination Potential at Sandia National Laboratories, Albuquerque, NM," In Proceedings of the Fifth DOE Environmental Protection Information Meeting, Albuquerque, New Mexico, November 6-8, 1984, CONF-841187, pp. 531–540.

U.S. Department of Energy, 1999. "Final Site-Wide Environmental Impact Statement for Sandia National Laboratories/New Mexico" (DOE/EIS-0281), Albuquerque Operations Office, Albuquerque New Mexico

U.S. Environmental Protection Agency (EPA), 1989. "Risk Assessment Guidance for Superfund, Vol. I: Human Health Evaluation Manual," EPA/540-1089/002, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C.

Wildin, Maurice W., 1986. "Investigations Pertinent to Ignition of Sprayed Layers of Silver Acetylide Silver Nitrate". SAND 1985-1859, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility Part B Permit Application

Module III

Revision 43.0

November 20043

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... CWMF-iv
LIST OF FIGURES ..... CWMF-v
ACRONYMS AND ABBREVIATIONS ..... CWMF-vii
1.0 GENERAL UNIT OPERATIONS CWMF-3
1.1 Designated Waste Management Areas CWMF-3
1.1.1 Building 6920 ..... CWMF-4
1.1.2 Building 6921 ..... CWMF-7
1.1.3 Building 6925 ..... CWMF-8
1.1.4 Building 6926 ..... CWMF-8
1.1.5 RMWMF Modular Storage Buildings (TP150 and TP153) CWMF-9
1.1.6 CWMF Modular Storage Buildings CWMF-10
1.1.7 Outdoor Waste Storage Area CWMF-10
1.2 Unit Operations CWMF-10
1.2.1 Operation of Containment Systems CWMF-11
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes CWMF-11
1.2.3 Preparedness and Prevention CWMF-13
1.2.3.1 Required Equipment CWMF-13
1.2.3.2 Testing and Maintenance of Equipment CWMF-14
1.2.3.3 Access to Communications or Alarm Systems CWMF-14
1.2.4 Hazards Prevention CWMF-15
1.2.4.1 Preventing Hazards in Unloading CWMF-15
1.2.4.2 Preventing Runoff or Flooding CWMF-16
1.2.4.3 Preventing Contamination of Water Supplies CWMF-16
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages ..... CWMF-16~~17~~
1.2.4.5 Preventing Undue Exposure CWMF-17
1.2.4.6 Preventing Releases to the Atmosphere CWMF-17
1.3 Container Storage CWMF-18
1.3.1 Container Types and Labeling ..... CWMF-18~~19~~
1.3.2 Container Handling ..... CWMF-18~~19~~
1.3.2.1 Condition of Containers ..... CWMF-18~~19~~
1.3.2.2 Aisle Space and Storage Configuration CWMF-19
1.3.2.3 Compatibility of Waste with Containers CWMF-19
1.3.2.4 Presence of Liquids in Containers ..... CWMF-19~~20~~
1.4 Treatment Operations ..... CWMF-19~~20~~
2.0 UNIT DESCRIPTION AND INFORMATION ..... CWMF-21~~22~~
2.1 Security Procedures And Equipment ..... CWMF-21~~22~~
2.1.1 Barriers and Means to Control Entry ..... CWMF-21~~22~~
2.1.2 Warning Signs ..... CWMF-22~~23~~
2.2 Traffic Pattern, Volume, and Controls ..... CWMF-22~~23~~
2.2.1 Traffic Patterns ..... CWMF-22~~23~~
2.2.2 Traffic Volumes ..... CWMF-23~~24~~
2.2.3 Traffic Control Signals ..... CWMF-23~~24~~

TABLE OF CONTENTS (Continued)

2.3 Unit Location Information CWMF-2324
2.3.1 Seismic Standard CWMF-2324
2.3.2 Floodplain Standard CWMF-2324
2.4 Topographic Maps CWMF-2425
2.5 Groundwater Monitoring CWMF-2526
3.0 WASTE ANALYSIS PLAN CWMF-2627
4.0 INSPECTION PLAN CWMF-2728
5.0 PERSONNEL TRAINING CWMF-3233
6.0 CONTINGENCY PLAN and emergency response CWMF-3334
7.0 CLOSURE PLAN CWMF-5253
7.1 Unit Description CWMF-5253
7.2 Estimate of Maximum Waste in Storage CWMF-5455
7.3 Closure Conditions CWMF-5556
7.4 Closure Activities and Schedule CWMF-5657
7.4.1 Closure Activities CWMF-5657
7.4.2 Closure Schedule CWMF-5758
7.5 Sampling and Analysis Plan CWMF-5758
7.5.1 Sampling and Analysis Scope CWMF-5758
7.5.2 Sampling Methodology CWMF-6061
7.5.2.1 Sample Locations CWMF-6061
7.5.2.2 Sample Collection CWMF-64
7.5.2.3 Sampling Equipment CWMF-65
7.5.2.4 Sample Equipment Decontamination CWMF-65
7.5.2.5 Sample Identification CWMF-66
7.5.2.6 Sample Preservation and Holding Time CWMF-67
7.5.3 Demonstration of Clean Closure CWMF-67
7.5.4 Quality Control CWMF-68
7.5.5 Data Management and Reporting CWMF-69
7.6 Decontamination and Verification Procedures CWMF-69
8.0 TREATMENT PLAN CWMF-70
8.1 Treatment Operations CWMF-70
8.1.1 Chemical Deactivation CWMF-71
8.1.2 Thermal Deactivation CWMF-73
8.1.3 Amalgamation CWMF-73
8.1.4 Stabilization CWMF-74
8.1.5 Macroencapsulation CWMF-74
8.1.6 Physical Treatment CWMF-75
8.2 Preventing Releases to the Atmosphere CWMF-76
8.2.1 Subpart AA CWMF-77
8.2.2 Subpart BB CWMF-77
8.2.3 Subpart CC CWMF-77
8.3 Treatment Effectiveness CWMF-77
8.3.1 Chemical Deactivation CWMF-7778
8.3.2 Thermal Deactivation CWMF-78
8.3.3 Amalgamation CWMF-78
8.3.4 Stabilization CWMF-78

TABLE OF CONTENTS (Concluded)

8.3.5 Macroencapsulation CWMF-79
8.3.6 Physical Treatment.....CWMF-79
9.0 REFERENCES.....CWMF-80

LIST OF TABLES

Table No.	Title
1	Storage Capacity for South Bay of Building 6920, Consolidated Waste Management Facility
2	Fire Suppression Systems at the Radioactive and Mixed Waste Management Facility
3	Fire Suppression Systems at the Consolidated Waste Management Facility
42	Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency
5	Consolidated Waste Management Facility Inspection Criteria and Frequency
63	Radioactive and Mixed Waste Management Facility Emergency Equipment and Locations
7	Consolidated Waste Management Facility Emergency Equipment and Locations
84	Radioactive and Mixed Waste Management Facility, Consolidated Waste Management Facility, Emergency Coordinator List
95	Radioactive and Mixed Waste Management Facility, Summary of Pre-Wash Random Sampling Program
106	Radioactive and Mixed Waste Management Facility, Summary of Post-Wash Example Random Samplinge Programlocations
11	Consolidated Waste Management Facility, Summary of Post-Wash Sampling Program

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility (RMWMF) at Sandia National Laboratories/ New Mexico
2	Location of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility (RMWMF) in Technical Area III
3	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Unit Layout
4	Radioactive and Mixed Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
5	Consolidated Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
65	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, Resource Conservation and Recovery Act-Regulated Waste Management Areas
76	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Area
8	Consolidated Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Area
97	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Traffic Route and Controls
108	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Topographic Map
119	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Access Control Features
120	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Drainage Control Features
131	Radioactive and Mixed Waste Management Facility, Evacuation Routes
14	Consolidated Waste Management Facility, Evacuation Routes
152	Radioactive and Mixed Waste Management Facility, Emergency Response and Access Information

LIST OF FIGURES (Concluded)

Figure No.	Title
16	Consolidated Waste Management Facility, Emergency Response and Access Information
173	Radioactive and Mixed Waste Management Facility, Building 6920, Closure Random Sampling Grids
18	Consolidated Waste Management Facility, Building 6920, Closure Grids
194	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, ClosureRandom Sampling Grids
2015	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, ClosureRandom Sampling Grids
21	Consolidated Waste Management Facility, Buildings 6925 and 6926, Closure Grids
1622	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Modular Storage Buildings, ClosureRandom Sampling Grids
23	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Thermal Deactivation Unit, Exterior Bottom View

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2XX, Section 2*XX.XX*
CWMF	Consolidated Waste Management Facility
CMU	concrete masonry unit
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot/feet
ft^2	square foot/feet
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
lb/ft^2	pound(s) per square foot/feet
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	Technical Area
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO RADIOACTIVE AND MIXED WASTE MANAGEMENT FACILITY/ CONSOLIDATED WASTE MANAGEMENT FACILITY PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Radioactive and Mixed Waste Management Facility (RMWMF)/Consolidated Waste management Facility (CWMF) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003June 14, 2000 [10-1-036-14-00], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage and treatment operations at the existing RMWMF and at the future CWMF. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application," hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the General Part B, and in the appendices to the General Part B meet the applicable requirements for the CRMWMF that are specified in 20 NMAC 4.1.500/40 CFR 264 [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270 [6-14-0010-1-03].

Sandia/DOE also prepared the "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 75.0" (SNL/NM, 20043), hereinafter referred to as the SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this CRMWMF Part B Permit Application.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Radioactive and MixedConsolidated Waste Management Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

Sandia/DOE currently operate the existing RMWMF under interim status in accordance with the terms of the most recent Part A submitted approved by to the New Mexico Environment Department (NMED) (November 29, 2004May 2002) and the most recent Part B permit request submitted to NMED (November 29, 2004April 16, 2003).

Sandia/DOE plan to make physical modifications to the existing RMWMF during the next three years to increase capacity, and the modified facility will be called the CWMF. The existing RMWMF occupies 3.11 acres in the southeast corner of Technical Area (TA)-III; the CWMF will occupy the same space. The RMWMF It is a fenced compound with several buildings and waste management areas (WMAs). Operations include storage of RCRA-regulated wastes in

containers, repackaging wastes, and treating the wastes as needed to render them more suitable for shipment to off-site treatment and/or disposal facilities. Sandia/DOE will increase capacity of some of the existing WMAs, add two WMAs, and continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes) at the future CWMF. All of the RCRA-regulated wastes listed in the General Part A may be managed at the existing RMWMF and at the future CWMF.

The physical modifications are scheduled to occur in stages over the next three years. The existing (RMWMF) waste management operations will continue during that time. Individual buildings and WMAs will not be used while they are undergoing renovation that affects operations in the WMAs. Operations will resume in each WMA when modifications are complete. Both the existing and future facilities and operations are described in this application.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the existing RMWMF and future CWMF waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes: containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable hazardousRCRA-regulated waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [6-14-0010-1-03], and 20 NMAC 4.1.900/ 40 CFR 270.14 and 270.15 [6-14-0010-1-03].

1.1 Designated Waste Management Areas

The location of the CWMF/RMWMF at SNL/NM is shown on Figure 1. The location of the CWMF/RMWMF within TA-III is shown on Figure 2. The existing RMWMF has six designated WMAs; the CWMF includes two additional WMAs (Figure 3). : Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence to the north, east, and west of Building 6920) are included in the RMWMF and the CWMF. The CWMF also includes two additional modular storage buildings.

In each RMWMF and CWMF WMA (except where noted), containers holding RCRA-regulated liquid wastes are stored on portable spill pallets orand pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives, solvents, and other liquids. The containers of liquids (typically 5- to 55-gallon capacity) are stored on the grating. Any liquids released from the containers drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [6-14-0010-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3) [6-14-0010-1-03].

Each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

RCRA-regulated wastes are typically stored inside one of the buildings or inside transportainers in the outdoor storage area. The containers are protected from precipitation by the buildings and transportainers, and by the slope of the asphalt pavement and concrete pads outside the buildings that direct storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(4).

The following sections provide descriptions of the storage structure, features, location, and capacity of each WMA. Treatment practices are summarized in Section 1.4 and discussed in detail in Section 8.0 of this module.

1.1.1 Building 6920

The principal structure at the existing RMWMF and the future CWMF is Building 6920. The CWMF modifications include renovating the interior of the building, replacing most of the utility systems, and adding new rooms to the east and west ends of the building. The additions include mechanical and electrical rooms on the west end of the building, and new storage and work areas on the east end of the building.

The existing floor plan for Building 6920 is presented on Figure 4. The CWMF floor plan for Building 6920 is shown in Figure 5. Existing and future The WMAs in Building 6920 include waste staging, repackaging, and storage areas, and waste treatment areas. Building 6920 is a single-story concrete and steel structure housing approximately 5,000 square feet of with a total RCRA-regulated waste management area of approximately 5,000 square feet (ft^2) with a maximum capacity of approximately 13,420 gallons. The floors are 6-inch (in.) reinforced, sealed concrete on compacted subgrade sloped to sumps with no outlets. Walls are 8-in. load-bearing concrete masonry unit (CMU) with prefinished metal building panels in some areas. Nongrouted cells of the 8-in. CMU exterior walls are filled with vermiculite insulation. The staging area at the east end of the building has 14-foot (ft) high reinforced concrete walls. The exterior walls are 2-ft thick, interior walls are 1-ft thick, and the shared wall between the north and south parts of the building is 1.5-ft thick. Inner partitions are 8-in. reinforced CMU.

The roof consists of 24-in. deep steel joists with a 1.5 in. metal deck with 3-in. rigid insulation and a single-ply roof membrane. The roof system is a single-ply fully adhered elastomeric system, installed over rigid insulation with factory-laminated fiberglass-coated skin on both sides, and attached to the deck with metal fasteners. Ceilings are exposed and painted.

Building 6920 consists of two bays (north and south) that are isolated from each other by a wall, with an interior airlock and office area nearat the west end of the building.

The additions on the east and west ends of the building will be constructed with pre-manufactured metal walls on a reinforced, sealed concrete slab on compacted subgrade. The roofing system will be the same type as on the existing building. The additional storage and work rooms on the east end of the building will include approximately 1,100 sq ft of area.

There are (and will be) six several exterior personnel doors and four cargo entrances to the building, as well as separate entrances to the exterior mechanical and electrical rooms. The seven personnel doors provide access to the north and south bays and to all sides of the buildinginclude: three at the eastern side of the building, one on the northern side, and three at the western side. There is a cargo entrance (i.e., roll-up door) at each end of each bay. Rollup doors enclose the airlocks on the south bay.

North Bay

In the existing RMWMF, wWaste treatment, storage, and repackaging areis performed in the north bay certain portions of Building 6920 (Figure 4). The storage capacity of the existing north bay is approximately 6,000 gallons of RCRA-regulated wastes. Treatment currently includes physical treatment and macroencapsulation.

In the future CWMF, operations in the renovated north bay will include repackaging, storage, and treatment (physical treatment, macroencapsulation, chemical and thermal deactivation, stabilization, and amalgamation) of RCRA-regulated wastes. The new area at the east end of the building will be used for storage of RCRA-regulated wastes in containers. The capacity of the renovated north bay and new work areas will be approximately 19,070 gallons.

Both bays in Building 6920 are equipped with secondary containment. The floor in the north each bay currently slopes from the doorways toward one or more shallow (6-in.-deep) blind sumps covered with grating. Containers of liquid RCRA-regulated wastes are typically stored over or near the sumps in the south bay. In the north bay and other areas of Building 6920, containers of liquid RCRA-regulated wastes are stored on portable spill pallets orand pans covered with grating. Floors, (including the sumps), and the walls in the WMAs of Building 6920 are sealed with a chemical-resistant epoxy, which withstands degradation by chemical substances and resists wear from forklift traffic. The sumps and pallets meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4). This secondary containment configuration will be maintained in the CWMF.

The existing RMWMF north bay includes two enclosed areas (shown in Figure 4) that are equipped with a negative-pressure exhaust system. The exhaust passes through a high-efficiency particulate air (HEPA) filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The CWMF north bay will include two new enclosed areas where personnel will perform repackaging and treatment operations, and some storage. The remaining areas in the north bay will be used for storage. All of the north bay, including the enclosed areas, will be equipped with a negative-pressure exhaust system. The exhaust will pass through a high-efficiency particulate air (HEPA) filter train before being released to the environment through an exhaust stack, in the same manner as the current exhaust system. The filters effectively remove particulates entrained in the air flow.

Two commercially available fume hoods with negative-pressure ventilation systems will be installed in one of the enclosed areas in the CWMF north bay. Two other local ventilation systems will be installed in the other enclosed area. The exhaust from all local systems will be included with the general exhaust from the north bay.

South Bay

In the existing RMWMF, waste treatment, storage, and repackaging are performed in the south bay of Building 6920 (Figure 4). Wastes are stored in the main bay and in the airlocks at either end. Treatment in the south bay currently includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment. The current storage capacity of the south bay and airlocks is 7,420 gallons.

In the future CWMF, operations in the renovated south bay will include repackaging and storage of RCRA-regulated wastes. In this area, containers of RCRA-regulated wastes will be stored, lab packs will be prepared by placing small containers in to larger containers filled with absorbent material, liquid wastes will be combined and bulked into larger containers, and other wastes will be packaged into appropriate containers for shipment to off-site treatment, storage and disposal facilities (TSDFs).

The renovated south bay will include the existing main area and two airlocks, eight new storage bays and a new enclosed room (bulking room) used for repackaging and some storage of RCRA-regulated wastes, as shown on Figure 5. Repackaging may also take place in any area of the south bay.

Wastes will be stored in the new bays, the main south bay, and the airlocks at either end. The total storage capacity of the airlocks will be 15,600 gallons. Containers of liquid RCRA-regulated wastes will be stored on portable spill pallets or pans in the airlocks. The storage capacity of the main area, new storage bays, and enclosed bulking room is based on the available secondary containment provided by the building in these areas, as described below.

The individual storage bays in the south bay will be separated by 10-foot-high CMU walls. All the bays and the enclosed room will have recessed concrete floors covered with metal grating. Waste containers will be placed on shelves over the metal grating in the bays and enclosed room. The load-bearing capacity of the grating and the floor will be 320 pounds per square foot (ft^2), and 2000 pounds per ft^2, respectively. Several additional sumps are located along the southern wall of the main south bay in the existing RMWMF; these sumps are also covered with metal grating and will remain in the renovated facility. The entire floor of the south bay and the wall surfaces inside each recessed area (up to the grating) will be covered with an epoxy-based chemical-resistant coating. The coating will form a continuous protective barrier over the concrete and protect the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

Secondary containment will be provided by the recessed areas. The eight storage bays will vary in size, secondary-containment capacity, and waste-container capacity. The secondary containment capacity in each storage bay and in the enclosed room will be provided by the recessed area. For example, the recessed area in Bay H will be 9 ft wide by 11 ft long and 4 inches deep, with a net capacity of 233 gallons (part of the volume will be occupied by supports for the grating). The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus the storage capacity in Bay H will be 2,330 gallons, 42 55-gallon drums, or an equivalent volume. The secondary containment will meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

Based on the secondary containment capacity, the storage bays, enclosed (bulking) room and main south bay will be limited to the following maximum storage capacity of 55-gallon drums, or equivalent volume, as listed in Table 1.

Table 1
Storage Capacity for South Bay of Building 6920, Consolidated Waste Management Facility

Bay No.	Secondary Containment Capacity, Gallons	Maximum Number of 55-Gallon Drums Stored[a]
A	159	28
B	159	28
C	233	42
D	181	32
E	129	23
F	129	23
G	181	32
H	233	42
Bulking Room	337	61
South Bay	499	90

[a] Actual limit will be various containers with total volume equivalent to stated number of 55-gallon drums

In the existing RMWMF, there are four small rooms in the south bay (Figure 4) where personnel typically conduct treatment and storage. One commercially available fume hood with a negative-pressure ventilation system is located in one of these rooms. Another local ventilation system is located in another of the rooms. The exhaust from both of these systems is combined and passes through a HEPA filter train before being released to the environment through the exhaust stack. The filters effectively remove particulates entrained in the air flow of each system.

Two commercially available fume hoods will be installed in the enclosed (bulking) room in the CWMF south bay. Each fume hood will be equipped with a negative pressure ventilation system. All of the south bay, including the enclosed room, will be equipped with a negative-pressure exhaust system. The exhaust will be released to the environment through the exhaust stack.

1.1.2 Building 6921

The Waste Assay Facility (Building 6921) is located east of Building 6920 (Figure 3) in the RMWMF. The CWMF modifications include some modifications to the utility systems and will not affect the WMAs or waste management activities.

Unit personnel treat, repackage, and store wastes in the WMAs. The Building 6921 floor plan is presented on Figure 65. Building 6921 is a single-story structure constructed with interior walls of 8-in. CMU and metal studs. The roof is comprised of steel bar joists with metal decking, rigid insulation, and single-ply membrane roofing. The floors are 6-in.-thick concrete slab-on-grade. The floors in the assay area on the south side of the building are sealed with a chemical-resistant epoxy that extends up the walls for 6 in. The floors in the other two WMAs are also coated. The total WMARCRA-regulated waste management area is approximately 1,450 ft^2 with a maximum capacity of approximately 7,810 gallons.

Building 6921 (waste treatment area, shown on Figure 5) is equipped with a commercially available fume hood with a negative-pressure ventilation system. The ventilation air flow from the hood passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

Treatment in Building 6921 includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment.

1.1.3 Building~~s~~ 6925 ~~and 6926~~

Building~~s~~ 6925 ~~and 6926 are~~ is used for storage and some treatment of RCRA-regulated waste at the RMWMF. Treatment consists of macroencapsulation (Building 6925).

The CWMF modifications to this building include some modifications to the utility systems and will not affect the WMAs or waste management activities.

The floor plan~~s~~ for RMWMF Building~~s~~ 6925 is presented on Figure 7. The CWMF floor plan is the same as the RMWMF floor plan; the floor plan for CWMF Building 6925 is ~~and 6926 are~~ presented on Figure 8~~6~~. Building 6925 has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. ~~Building 6926 also has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons.~~ It ~~Each~~ is a prefabricated steel building erected on a reinforced concrete slab floor and foundation. The concrete floors are covered with chemical-resistant epoxy coating. Steel rollup doors are located on the south~~ern~~ and east walls of the ~~each~~ building~~, on the eastern wall of Building 6925, and on the western wall of Building 6926~~. Personnel doors are located on the east, south, and west sides of the ~~each~~ building.

1.1.4 Building 6926

Building 6926 is used for storage of RCRA-regulated waste at the RMWMF. The CWMF modifications to this building include renovating the interior of the building and modifying the utility systems.

The floor plan for RMWMF Building 6926 is presented on Figure 7. Existing Building 6926 has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. It is a prefabricated steel building erected on a reinforced concrete slab floor and foundation. The concrete floors are covered with chemical-resistant epoxy coating. Steel rollup doors are located on the south and west walls of the building. Personnel doors are located on the east, south, and west sides of the building.

In the future CWMF, the roll-up doors and personnel doors will be located on the east and west ends of the building. The renovated building will contain seven separate and recessed waste storage compartments for storage of containers of RCRA-regulated wastes, as shown on Figure 8. Six of the bays will have recessed reinforced concrete floors covered with metal grating. The remaining bay will have a reinforced concrete floor and will be surrounded by a concrete curb inside the existing wall. The bays will be separated by 7-foot-high CMU walls. The entire floor (all bays, walkways, and curbs) and the wall surfaces inside each recessed area (up to the grating) will be covered with an epoxy-based chemical-resistant coating. The coating will form a

continuous protective barrier over the concrete and protect the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

Waste containers will be placed on the metal grating over the secondary containment area in the six small bays. Containers of RCRA-regulated waste will be placed on pallets on the floor in the large bay. The load-bearing capacity of the of the grating and the floor will be 700 pounds per square foot (ft^2), and 2,000 pounds per ft^2, respectively.

Secondary containment will be provided by the recessed areas. Each of the six small bays (Bays 1, 2, 3, 5, 6, and 7) will be 14.33 ft wide by 12.67 feet long and 4 inches deep, with a net capacity of 332 gallons (part of the volume will be occupied by supports for the grating). The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus the storage capacity in each small bay will be 3,320 gallons, 60 55-gallon drums, or an equivalent volume.

The large bay will be 46.67 feet long by 38 feet wide with a 5.75-inch curb; the net containment capacity will be 5,349 gallons (part of the volume will be occupied by entry ramps and storage pallets. The storage capacity will be 53,492 gallons, 972 55-gallon drums, or an equivalent volume.

The total capacity of CWMF Building 6926 will be approximately 73,419 gallons. The secondary containment will meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.1.41.1.5 RMWMF Modular Storage Buildings (TP150 and TP153)

There are two modular storage buildings located west of Building 6920 that are used for storage of RCRA-regulated reactive and ignitable/flammable wastes (Figure 3).

The exterior dimensions of each modular storage building are 23-ft long, 9-ft wide, and 8.6-ft high. The structures are constructed for a snow loading of 40 pounds per square foot (lb/ft^2), Uniform Building Code seismic Zone 3, and a wind loading with exposure C open area at 110 miles per hour. The walls and roof of each structure are rated for a 2-hour fire. Each building has two 5-ft wide doors, and each door has a single-point locking mechanism with inside safety release. Each building is vented. The inside walls and ceiling of each building are covered with an epoxy coating which is resistant to reactive wastes.

Each modular storage building has a 5.5-inch-deep integral spill containment reservoir under the entire building; the capacity is 650 gallons. The secondary containment capacity is 10% of the stored volume of the contents of the largest container; thus, the storage capacity based on secondary containment is 6500 gallons. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4). The reservoirs are constructed of 10-gauge American Society for Testing and Materials A36 steel and are coated with a chemical-resistant epoxy. The building floors are epoxy-coated steel grating. Each building rests on structural supports that elevate it and allow visual checks inspections of the underside of the spill containment reservoir if there is evidence of deterioration on the interior surfaces. The maximum storage capacity at each building is not based on secondary containment. It is approximately 1,100 gallons.

1.1.6 CWMF Modular Storage Buildings

Two additional modular storage buildings will be located in the northeast corner of the CWMF compound. These buildings will be the same as or very similar to the existing buildings. They will each be constructed of welded 10- to 12-gauge steel with integral spill containment reservoirs under the entire building. Each will be approximately 20 to 25 feet long, 8 to 10 feet wide, and 8 to 10 feet high with two or three doors. The interior floors and the interior surfaces of the containment reservoirs will have a chemical-resistant coating. Like the existing modular buildings, each additional building will rest on structural supports that will elevate it and allow visual checks of the underside of the reservoir if there is evidence of deterioration on the interior surfaces. The reservoirs will contain 500 gallons of liquid; therefore the maximum capacity of each additional building (based on the secondary containment) will be 5,000 gallons.

1.1.51.1.7 Outdoor Waste Storage Area

The outdoor waste storage area consists of the asphalt paved areas to the north, east, and west of Building 6920 and within the RMWMF fence (Figure 3). The outdoor waste storage area may be used for containerized RCRA-regulated waste storage of RCRA-regulated wastes. It has an area of approximately 48,500 ft^2 with a total storage capacity of approximately 19,800 gallons. The area is curbed and paved with berms on the east end of the site, and slopes toward the water retention pond. In the event of any releases of liquids in the outdoor storage area, the curbing and berms and the retention pond would capture released liquids, including precipitation so that any contaminants would not exit the site.

Containers of RCRA-regulated wastes are typically stored inside enclosed steel transportainers, which are 10- to 40-cubic-yard transportable containers. A transportainer typically has doors at one end and can be lifted onto a large flatbed truck for transportation.

The additional modular buildings associated with the CWMF will be located within the outdoor storage area, reducing its total storage capacity to 15,840 gallons.

1.2 Unit Operations

The RMWMF and CWMF WMAs are and will be used to store and/or treat any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the SNL/NM General Part A. Many of the wastes may also be treated in the RMWMF WMAs; specific treatment operations are discussed in Sections 1.4 and 8.0 of this Module.

Information regarding operations requiring a permit at of all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the SNL/NM General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14 [b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Liquid wastes released from individual containers will accumulate in the spill pallets. Unit personnel begin taking action to evaluate and remove accumulated liquids in the spill pallets and sumps (in Building 6920) upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

In renovated Building 6920 at the CWMF, Unit personnel will inspect containers for integrity when they arrive, before placing them on the shelves in the individual bays. Containers in poor condition will be overpacked into other containers or the RCRA-regulated wastes will be transferred to other containers, as described in Section 1.2.2.1 of the General Part B. The shelves will typically be lined with absorbent pads under removable grating. Containers will be placed on the grating on the shelves, and will be inspected regularly as noted in Section 4.0 of this module and in Appendix C of the General Part B. Released materials will be contained in the absorbent pads and will be cleaned up as described in Section 1.1.1 of the General Part B. These practices will serve to protect the containers on the shelves from contact with liquids.

In renovated Buildings 6920 and 6926 at the CWMF, Unit personnel will begin taking action to evaluate and remove accumulated liquids in each secondary containment area upon discovery. Accumulated liquids will be cleaned up as described in Section 1.1.1 of the General Part B.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[d]; and 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the RMWMF. Sources of ignition that may be present at the RMWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the ~~SNL/NM~~ General Part B. Additional RMWMF-specific features, potential ignition and reaction sources, precautions, and practices include:

- The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. They are equipped with a dry chemical fire suppression system to assure that water-reactive wastes will not be exposed to water during fire emergencies.

- Ignitable and reactive wastes are segregated from other wastes and typically stored in the modular storage buildings. The modular storage buildings have exterior signs indicating the presence of ignitable/flammable and reactive wastes.

- Ignitable and reactive wastes may also be stored in Building 6925, and may be kept temporarily in Buildings 6920, 6921, and 6926 for treatment, packaging, and staging for shipment. Individual containers are labeled as described in Section 1.2.1 of the General Part B, and they are kept apart from other wastes.

- Water-reactive wastes are not routinely stored in areas equipped with water sprinklers for fire suppression. They may be managed temporarily in Buildings 6920, 6921, 6925, and 6926 for treatment, packaging, and staging for shipment. If water-reactive wastes are present, they will be isolated from water contact as described in Section 1.1.2.1 of the General Part B, and their location will be identified through the use of signs, labels, or some other method.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas; each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Forklifts are not used for waste movement near treatment operations involving ignitable or reactive wastes in Building 6920 to minimize potential sources of ignition while containers are or may be open.

- Wastes are mixed together on a very limited basis during the treatment and repackaging operations at the Unit. Ignitable and reactive wastes are treated or mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994] or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions. Treatment operations are described in Section 8.0 of this module.

Any of the ignitable or reactive wastes listed in the General Part A may be managed in the future at the CWMF. Sources of ignition that may be present at the CWMF are the same as those in the existing RMWMF, and Unit personnel will employ the same precautions and practices described for the RMWMF. Future features, potential ignition sources, precautions, and practices associated with the CWMF include:

- The enclosed room in the south bay of Building 6920 will be used for open container operations (e.g., bulking, sampling) that may involve ignitable or reactive wastes. The ventilation system will be designed to exhaust air from the lower part of the room to minimize accumulation of potentially hazardous vapors. All electrical receptacles and switches elevated less than four feet from the floor will be intrinsically safe (spark proof). The remainder of the south bay will not be used for operations involving open transfer of potentially ignitable or reactive wastes, and will not require specialized exhaust or an intrinsically safe electrical system.

- Spontaneously ignitable and water-reactive wastes will be segregated from other wastes and typically stored in the new modular storage buildings. The new modular storage buildings will have exterior signs indicating the presence of ignitable and reactive wastes.

- Ignitable and reactive wastes will be stored in any of the buildings, and will be segregated from other wastes within each storage area. The containers will be labeled as described in Section 1.2.1 of the General Part B. In 6920 (north bay), in 6921, and in 6925, Unit personnel will typically place a portable sign near the wastes, use prominent labels, or use another method to assist in identifying them as ignitable and/or reactive. In Building 6920 (south bay), ignitable and reactive wastes will be labeled and segregated in different holding cells according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. Each cell will be marked with a sign noting the hazard class(es) of wastes inside. Containers in Building 6926 (including ignitables and reactives) will be labeled. They will be segregated into different bays according to general DOT hazard classes in 49 CFR 172 and 20 NMAC4.1.500/40 CFR 264 Appendix V as appropriate. Each bay will be marked with a sign noting the hazard class(es) of wastes inside. The holding cells and bays will be separated from each other by concrete walls and will have independent containment systems.

- Spontaneously ignitable wastes may be managed temporarily in Buildings 6920, 6921, 6925, and 6926 for treatment, packaging, and staging for shipment. Individual containers will be labeled as described in Section 1.2.1 of the General Part B, and they will be kept apart from other wastes.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.5.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the existing RMWMF/future CWMF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

General information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrants at the RMWMF are shown in Figure 14~~12~~. These fire hydrants will remain at the CWMF.

The existing modular storage buildings are grounded by a 10-ft-long grounding rod and cable. The additional modular storage buildings will be equipped with the same type of system.

All buildings at the RMWMF are equipped with automatic fire suppression systems, summarized in Table 2.~~below:~~

Table 21
Fire Suppression Systems at the
Radioactive and Mixed Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6920 (general area)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (small rooms)	13	Extra/Group 1	Automatic sprinkler, wet pipe	GB/FS
HEPA filters	15	N/A	Deluge, dry/open	Detection
6921	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6925	13	Ordinary/Group 2Storage	Automatic sprinkler, dry pipe	GB/FS
6926	13	Ordinary/Group 2Storage	Automatic sprinkler, dry pipe	GB/FS
TP150	17	N/A	Dry chemical	
TP153	17	N/A	Dry chemical	

a National Fire Protection Association (NFPA), 2000, 2002
b Sprinklers are either glass bulb (GB) or fusible solder (FS) type, typically designed to open at temperatures of 155ºF or higher.

All buildings at the CWMF will be equipped with automatic fire suppression systems, summarized in Table 3.

Information on other required equipment located at the RMWMF and CWMF is provided in Section 6.0 and Table 32 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the RMWMF is provided in Appendix C of the SNL/NM General Part B and in Section 4.0 of this module. Information on future equipment testing and maintenance at the CWMF is also provided in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the RMWMF is provided in Section 1.1.3.2 of the SNL/NM General Part B and in Section 6.0 of this module. Information regarding the future CWMF is also provided in Section 6.0 of this module.

Table 3
Fire Suppression Systems at the Consolidated Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6920 (north bay and new east rooms)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (south bay and enclosed room	13, 30	Extra Hazard/ Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (remainder of south bay)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
HEPA filters	15	N/A	N/A, detection only	N/A
6921	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6925	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6926 (Bays 1 and 2)	13, 30	Extra Hazard/ Group 2	Automatic sprinkler, wet pipe	GB/FS
6926 (remainder)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
TP150	17	N/A	Dry chemical	
TP153	17	N/A	Dry chemical	
Additional mod 1	17	N/A	Dry chemical	
Additional mod 2	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb (GB) or fusible solder (FS) type, typically designed to open at temperatures of 155ºF or higher.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the existing RMWMF to prevent hazards. Information regarding the future CWMF is also included. Additional information applicable to the RMWMF, CWMF, and all other Units at SNL/NM is included in Section 1.1.4 of the SNL/NM General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

RMWMF personnel employ the practices described in Section 1.1.4.1 of the SNL/NM General Part B to prevent hazards in unloading. Loading and unloading activities take place on the paved areas, typically immediately outside the buildings. The surface is sloped gently toward shallow drainage ditches, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Drums and other containers of RCRA-regulated waste are typically strapped together on a pallet before being loaded onto vehicles, or are loaded individually. Containers are typically transported within the Unit with forklifts, drum dollies, or pallet jacks.

Unit personnel typically use the loading dock for loading and unloading wastes from trucks. The ramp on the west side of Building 6926 slopes gently up to the dock, allowing forklift operators to drive onto trailers of trucks parked at the dock. The dock and ramp are in good condition and are covered with a corrugated metal roof to provide protection from weather.

Personnel will continue to use these practices during operations at the CWMF.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The area around the Unit slopes gently toward the west. Sheet-flow run-on of surface water from surrounding areas outside the Unit is prevented from entering the WMAs by several features. The elevated gravel road located outside the east fence of the Unit serves to divert water flowing from areas farther to the east. An 8-in. curb at the east edge of the asphalt pavement and an asphalt-lined drainage swale along the eastern edge of the Unit (inside the fence) divert run-on from the gravel road toward the south away from the Unit. On the south and west sides, the Unit is higher than the surrounding land. On the north side, the Unit and a narrow ledge of land outside the fence are higher than the surrounding land. Thus, run-on from all directions is prevented from entering the Unit.

The asphalt-paved areas within the Unit are surrounded by an 8-inch curb, further preventing run-on and run-off. The outside storage area slopes toward the south and west. The concrete pads outside the doors and the asphalt pavement surrounding Buildings 6920, 6921, 6925, and 6926 all slope away from the doors and toward shallow drainage channels that run between buildings 6920, 6925, and 6926. The channels lead to the synthetic-lined water retention pond at the southwest corner of the Unit, providing controlled drainage of storm water from roof downspouts and the paved areas in the RMWMF into the water retention pond. During normal operations, the water retention pond collects only storm water. The water retention pond does not provide secondary containment for RCRA-regulated waste.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that RCRA-regulated waste management of RCRA-regulated wastes activities at the RMWMF or CWMF will affect water supplies, as described in Section 1.1.4.3 of the SNL/NM General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. RCRA-regulated waste handlingmanagement activities in at the RMWMF WMAs will be suspended in response to that are affected by equipment failures orf power outages will be suspended in response to such outages. affecting those WMAs.

The RMWMF is equipped with an auxiliary diesel generator that can provide backup power to Building 6920. The generator maintains containment ventilation, alarm systems, heating

equipment, and controls necessary to keep water in pipes from freezing should the main power supply fail. This generator will continue to be available following the CWMF modifications.

Equipment and/or power failures at Buildings 6920, 6921, 6925, 6926; the outdoor waste storage area; or the two modular storage buildings will not result in a loss of containment of RCRA-regulated wastes containment. Equipment and/or power failures at the two additional CWMF modular storage buildings will not result in a loss of containment of RCRA-regulated wastes.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

RMWMF personnel employ the practices described in Section 1.1.4.5 of the SNL/NM General Part B to prevent undue exposure. In addition, the a enclosed work areas and negative-pressure ventilation systems in the fume hoods in Buildings 6920 and 6921 is provided additional protection for Unit personnel performing treatment and repackaging operations.for the RCRA-regulated waste storage, staging/packaging, and treatment areas. The ventilation air flow from these areas passes through high-efficiency particulate air filters before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow. Anticipated emissions from treatment operations are discussed in Section 8.2.

Following renovation, both the north and south bays of Building 6920 at the CWMF will be equipped with fume hoods and localized ventilation systems that will provide additional protection for Unit personnel performing treatment and repackaging operations.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

RMWMF personnel employ the practices described in Section 1.1.4.6 of the SNL/NM General Part B to prevent releases to the atmosphere during storage. CWMF personnel will employ the same practices.

Subpart AA

RMWMF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA. CWMF storage operations will not employ any of these processes.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [6-14-0010-1-03]. Equipment used in such service at the RMWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as

noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-0010-1-03]. The equipment list will be maintained in the RMWMF records. Equipment use will also be noted in the records.

Repackaging operations at the CWMF will sometimes involve a pump to be used in light organic service. It will be used for less than 300 hours per calendar year and will therefore be exempt from the requirements in the same manner as the equipment at the existing RMWMF. The equipment list will be maintained in the CWMF records, and equipment use will also be noted in the records.

Subpart CC

Unit personnel (at the RMWMF and future CWMF) follow and will continue to follow the practices described in Section 1.1.4.6 of the SNL/NM General Part B and maintain compliance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the existing or future Unit.

Section B.5.3 in Appendix B of the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

1.3 Container Storage (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264, Subpart I)

Container storage practices applicable to the RMWMF and future CWMF are presented in the following sections.

1.3.1 Container Types and Labeling

RMWMF personnel use the containers types and labeling practices described in Section 1.2.1 of the SNL/NM General Part B. They will continue to apply to CWMF operations.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

RMWMF personnel employ the container handling practices described in Section 1.2.2 of the SNL/NM General Part B. CWMF personnel will use the same practices.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the RMWMF is maintained as indicated in Section 1.2.2.1 of the SNL/NM General Part B. Containers at the CWMF will be maintained in the same manner.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

RMWMF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the SNL/NM General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency. CWMF personnel will employ the same practices.

In Buildings 6920, 6921, 6925, and 6926, drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than three pallets high. Box-shaped containers may be stacked three high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

Following renovation, container storage practices in Building 6926 and the south bay of Building 6920 will be modified. Stacked drum-shaped containers will be stored on pallets, and containers of liquids will not be stacked more than two pallets high. Containers of solids may be stacked three pallets high. Containers may also be stored directly on the grating or on pallets on the floor. Smaller containers may be stacked on a single pallet or on the grating.

Containers of liquids are not stacked when stored in the existing modular buildings at the RMWMF. Fifty-five gallon drums stored in all of the modular buildings at the CWMF will not be stacked; smaller containers may be stacked, including containers of liquids.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

RMWMF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the SNL/NM General Part B. CWMF personnel will follow the same practices.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

RMWMF personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the SNL/NM General Part B before storing containers in areas that are not equipped with secondary containment. CWMF personnel will follow the same practices.

1.4 Treatment Operations

RCRA-regulated wastes are treated at the RMWMF by the following methods:

- Chemical deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Thermal deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).

- Stabilization (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Amalgamation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Macroencapsulation (performed in Buildings 6920, 6921, or 6925)
- Physical treatment (performed in either bay in Building 6920 and in Building 6921).

Personnel at the CWMF will continue to treat RCRA-regulated wastes using the same treatment methods and equipment in the following locations:

- Chemical deactivation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Thermal deactivation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Stabilization will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Amalgamation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Macroencapsulation will be performed in Buildings 6920, 6921, or 6925.
- Physical treatment will be performed in the north bay in Building 6920 and in Building 6921.

The treatment practices applicable to the RMWMF and CWMF are discussed in detailpresented in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [6-14-0010-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-0010-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of SNL/NM General Part B.

2.1 Security Procedures And Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the RMWMF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The existing RMWMF is completely surrounded by an 8-ft-high chain-link and barbed-wire fence. A single personnel entrance door adjacent to the main vehicle entrance gate is located on the south side of the RMWMF. Another personnel entrance door and vehicle gate are located on the north side of the RMWMF. The gates and doors in the RMWMF fence are maintained in closed and locked positions. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the RMWMF gates during non-operational hours.

During work hours, RMWMF employees may enter the area through the locked personnel doors by entering the appropriate code into a keypad on the RMWMF fence near each personnel door. Emergency and service vehicles may enter the RMWMF through the electronically-

controlled main vehicle gate if RMWMF personnel enter the appropriate code into a keypad inside the office trailer or on the keypads located near the personnel doors on the RMWMF fence. Signs instruct personnel and visitors to report to the office trailer for site entry privileges and instructions. Resident personnel have Sandia-issued badges. Individuals who do not have a Sandia-issued badge are escorted. These procedures limit access to the RMWMF RCRA-regulated WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [6-14-0010-1-03].

The RMWMF is located inside TA-III (Figures 1 and 2). TA-III is surrounded by a barbed wire fence with designated access gates. TA-III access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-III.

The CWMF will be located at the site of the existing RMWMF and will include the same features and operating practices.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fence surrounding the RMWMF and the entrance to the RMWMF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the RMWMF. The fence and signs will remain around the CWMF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the SNL/NM General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated waste to the RMWMF include Wyoming Boulevard, Hardin Boulevard (formerly “O” Street), and Pennsylvania Avenue. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved road to TA-III turns southwestward off of Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Boulevard entrance gate as shown on Figure A-4 in Appendix A of the SNL/NM General Part B.

Within TA-III, traffic access to and from the RMWMF is along 2-lane asphalt-paved roads shown on Figure A-6 in Appendix A of the SNL/NM General Part B. Vehicles entering the RMWMF travel on an asphalt-paved 2-lane drive from the road through the south vehicle gate, as shown on Figure 97. Within the RMWMF, waste is transported on asphalt-paved surfaces.

All these traffic routes will apply to future CWMF operations.

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard and Hardin Boulevard are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Traffic volumes within TA-III are light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Approximately 10 to 30 vehicles per week travel into and out of the RMWMF. These include flatbed trucks and trailers carrying supplies, RCRA-regulated wastes from initial generators, and wastes to off-site TSDFs.

Approximately 20 to 40 vehicles per week are expected to travel into and out of the CWMF. These will include the same types of vehicles described above.

2.2.3 Traffic Control Signals

Vehicles must stop at a gate prior to entering or leaving TA-III. Only authorized personnel are permitted into TA-III. Speed limit signs (i.e., “30 mph Unless Otherwise Posted”) are located at several locations in TA-III.

There are no traffic control signals or signs within the RMWMF fenced area. A speed limit sign (i.e., “Max. Speed 5 mph On Site”) is posted on the fence adjacent to the RMWMF entrance gate (Figure 97). Vehicle presence within the RMWMF fenced area is limited to official and waste transport vehicles. Therefore, signals or signs are not necessary to control traffic within the RMWMF fenced area.

Traffic control at the CWMF will be the same as that currently practiced at the RMWMF.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i] and [ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the existing RMWMF/ future CWMF are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the SNL/NM General Part B [SNL/NM, 2003b]).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the existing RMWMF/future CWMF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the SNL/NM General Part B [SNL/NM, 2003b]).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [6-14-0010-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [6-14-00 10-1-03]).

- Surface waters, including intermittent streams, near the existing RMWMF/future CWMF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [6-14-0010-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B and Figure 108 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [6-14-0010-1-03]). The area surrounding the existing RMWMF/future CWMF is occupied by test areas and Sandia-controlled operations (industrial land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 108 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [6-14-0010-1-03]).

- Legal boundaries of SNL/NM (including the existing RMWMF/future CWMF) are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [6-14-0010-1-03]).

- Access control features at the existing RMWMF and future CWMF (e.g., fences, gates) are shown on Figures 108 and 119 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [6-14-0010-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the existing RMWMF and future CWMF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 108 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [6-14-0010-1-03]).

- The location of the RMWMF and associated WMA structures, loading and unloading areas, roads, and sanitary sewers associated with the existing RMWMF and future CWMF are shown on Figures 108 and 119 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [6-14-0010-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 120 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [6-14-00 10-1-03]).

- Locations of the existing RMWMF and the RMWMF WMAs and the future CWMF and CWMF WMAs are shown on Figures 3 and 108 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][xii] [6-14-0010-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the existing RMWMF/future CWMF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03], SNL/NM has submitted the maps to the NMED at these scales and contour intervals due to the size of the existing RMWMF/future CMWF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of this comprehensive Part B permit request. The existing RMWMF is not a regulated unit, and the future CWMF will not be a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor areis the RMWMF or CWMF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

Waste analysis requirements applicable to all Units, including the existing RMWMF and future CWMF, are addressed in Appendix B of the SNL/NM General Part B as required by 20 NMAC 4.1.900/40 CFR 270.14[b][2], 20 NMAC 4.1.500/40 CFR 264.13, "General Waste Analysis."

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [6-14-0010-1-03] require that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardousRCRA-regulated waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to RCRA-regulated waste management of RCRA-regulated waste activities to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. RMWMF personnel conduct inspections in accordance with the site-wide plan. CWMF personnel will do the same.

Specific items and areas that are inspected are listed in Table 42, with the inspection criteria and frequency. The items listed in the table are inspected in each RMWMF WMA where applicable.

Specific items and areas that will be inspected in the future CWMF are listed in Table 5, with the inspection criteria and frequency. The items listed in the table will be inspected in each CWMF WMA where applicable.

Automatic fire suppression systems are included in Tables 42 and 5. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on in accordance with the requirements of NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" (NFPA,2002), as described in Section 1.1.3.2 of the General Part B.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained at the RMWMF. Inspection records for previous calendar years are maintained at the RMWMF or the SNL/NM Records Center. CWMF personnel will follow the same practices.

Table 42
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 63 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash/safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building/storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Overhead crane	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Secondary containment (Buildings 6920, TP150, TP153)	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.

Table 42 (Concluded)
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Treatment areas	Good condition, clean, uncluttered, no spills	Daily when and where wastes are handled. Monthly otherwise.
Fume hoods	Good condition, clean, no deterioration	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or deterioration)~~; fume hood, drum, and room ventilation flows within established parameters~~	Prior to treatment (consumable items) or d~~D~~aily when and where wastes are treated ~~handled~~(tools). Monthly otherwise.
Thermal deactivation equipment	Good condition (i.e., no releases or deterioration)	Daily when used to treat wastes. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous~~RCRA-regulated~~ waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
~~STORED~~ CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 or 3 maximum)	Check individual containers as they are handled. Weekly otherwise.

Table 5
Consolidated Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 6 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash/safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building/storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Shelves (south bay of Building 6920)	Clean, in good condition, no accumulated leaks or spills	Daily when and where wastes are handled. Weekly otherwise.
Jib crane (Building 6920)	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Secondary containment (Buildings 6920, 6926, TP150, TP153, and additional modular buildings)	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Waste transfer pump	Present, operational, and in good condition	Prior to use. Monthly otherwise.

Table 5 (Concluded)
Consolidated Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Treatment areas (Buildings 6920, 6921, and 6925)	Good condition, clean, uncluttered, no spills	Daily when and where wastes are handled. Monthly otherwise.
Fume hoods (Buildings 6920 and 6921)	Good condition (i.e., no releases or deterioration)	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or deterioration)	Prior to treatment (consumable items) or daily when and where wastes are treated (tools). Monthly otherwise.
Thermal deactivation equipment	Good condition (i.e., no releases or deterioration)	Daily when used to treat wastes. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 or 3 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training Requirements for Unit personnel are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][12] and 20 NMAC 4.1.500/40 CFR 264.16 [6-14-0010-1-03], "Personnel Training."

The Sandia/DOE training program is designed and implemented to prepare personnel to safely operate and maintain those areas used for managing RCRA-regulated wastes. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the RMWMF.

RMWMF personnel receive training in accordance with the "Site-Wide Personnel Training Plan," provided as Appendix D of the SNL/NM General Part B. All job descriptions identified in Appendix D, Table D-2 of the SNL/NM General Part B are applicable at the RMWMF.
Training records for RMWMF personnel are maintained at the RMWMF.

The training applicable to existing RMWMF operations will also be applicable to future CWMF operations. Personnel will receive training and maintain records in the same manner as current RMWMF personnel. All job descriptions identified in Appendix D, Table D-2 of the General Part B will be applicable at the CWMF.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The "Site-Wide Contingency Plan" is included in as Appendix E of the SNL/NM General Part B. Supplemental RMWMF-specific information is included in this section, in Figures 11 and 12, and in Tables 3 and 4 of this module. Current copies of the sSite-wide cContingency pPlan (Appendix E of the SNL/NM General Part B) and this supplemental information are maintained at the existing RMWMF and at the SNL/NM Emergency Operations Center. The information will be maintained at the CWMF.

The existing RMWMF is located in the southeastern corner of TA-III at SNL/NM. It is used for treatment and storage of RCRA–regulated wastes. The RCRA-regulated WMAs at the RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence and north, east, and west of Building 6920). All are surrounded by a fence. Sandia/DOE plan to make physical modifications to the RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. The future CWMF will be located in the same fenced area, and will include the same WMAs plus two additional modular storage buildings. Sandia/DOE will conduct the same operations at the CWMF (storage, repackaging, and treatment of RCRA-regulated wastes) that are currently conducted at the RMWMF.

The existing RMWMF WMAs include the following:

- Building 6920 at the existing RMWMF is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 square feet of space used for waste RCRA-regulated storage and treatment activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage. The building also includes a control room, restrooms, and electrical and mechanical rooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored over a sump in the south bay or on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, thermal deactivation, or physical treatment. Up to 13,420 gallons of waste may be stored in this building.

- Building 6921 at the existing RMWMF is a single-story CMU building with approximately 1450 square feet of space used for waste RCRA-regulated storage and treatment activities. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, or physical treatment. Up to 7,810 gallons of waste may be stored in this building.

- Buildings 6925 and 6926 at the existing RMWMF are each 4000-square-foot prefabricated steel buildings on concrete foundations. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may also be treated by chemical deactivation, macroencapsulation, stabilization, and physical treatment. Up to 83,160 gallons of waste may be stored in each building.

- Two modular, prefabricated safety storage structures located west of Building 6920 at the existing RMWMF are used for the storage of reactive and ignitable wastes. Each structure is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. Each structure may contain up to 1,100 gallons of waste.

  The outdoor waste storage area at the existing RMWMF consists of 48,500 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence that may be used for storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers. Containers with liquids are stored on portable spill containment pallets inside the transportainers. Up to 19,800 gallons of wastes may be stored in these areas.

The future CWMF WMAs will include the following:

- Renovated Building 6920 will be a single-story concrete masonry unit (CMU) and steel building with a control room, restrooms, electrical and mechanical rooms, and approximately 6,100 square feet of space used for waste storage and treatment activities. Up to 57,070 gallons of RCRA-regulated wastes will be stored in waste management areas of the building. The interior will be separated into staging and storage areas, and two separate bays (north and south). All WMA floors will be coated with an epoxy finish.

  - Operations in the south bay will include storage and repackaging RCRA-regulated wastes. The south bay of the renovated building will include holding bays (with recessed floors) for storage of small containers (typically less than 55 gallons) of RCRA-regulated waste, an enclosed room, a main area, and airlocks at the east and west ends that can be used for storage. Containers of chemically incompatible wastes will be segregated into separate bays.

  - The north bay will be used for repackaging, storage, and treatment of RCRA-regulated wastes. Containers of liquids will be stored on portable spill containment pallets. The north bay will include work areas and storage areas in the new addition on the east end of the building. Containers of incompatible wastes will not be stored together. RCRA-regulated wastes may be treated by chemical deactivation, thermal deactivation, macroencapsulation, amalgamation, stabilization, or physical treatment.

- Building 6921 at the CWMF will be a single-story CMU building with approximately 1450 square feet of space used for waste storage and treatment activities. The building also includes office space and restrooms. Containers of wastes (typically less than

55 gallons) will be stored in this building. Containers with liquids will be stored on portable spill containment pallets. Containers of incompatible wastes will not be stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, or physical treatment. Up to 7,810 gallons of waste may be stored in this building.

- Building 6925 at the CWMF will be a 4000-square-foot prefabricated steel building on a concrete foundation. Containers of wastes (typically less than 55 gallons) will be stored in this building. Containers with liquids will be stored on portable spill containment pallets. Containers of incompatible wastes will be segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may also be treated by macroencapsulation. Up to 83,160 gallons of waste may be stored in this building.

- Building 6926 at the CWMF will be a 4000-square-foot prefabricated steel building on a concrete foundation. The building will include seven separate recessed waste storage compartments for segregation of wastes according to chemical compatibility. Up to 73,419 gallons of waste may be stored in the building.

- Two modular, prefabricated safety storage structures located west of Building 6920 at the CWMF will be used for the storage of reactive and ignitable wastes. Each structure is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. Each structure may contain up to 1,100 gallons of waste.

- Two additional modular, prefabricated safety storage structures will be located in the northeast corner of the fenced CWMF facility, and will also be used for the storage of reactive and ignitable wastes. Each structure will be constructed of 10- to 12-gauge welded steel, and will include a welded steel containment pan covered by grating. Each structure may contain up to 5,000 gallons of waste.

- The outdoor waste storage area at the CWMF will consist of 48,500 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the CWMF fence that may be used for storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes will typically be stored inside enclosed transportainers. Containers with liquids will be stored on portable spill containment pallets inside the transportainers. Up to 15,840 gallons of wastes may be stored in these areas.

RCRA-regulated wastes bearing the U.S. EPA Hazardous Waste Numbers listed in the SNL/NM General Part A may be stored and/or treated at the existing RMWMF and future CWMF WMAs., which may be used for RCRA-regulated waste storage and treatment.

Figure 131 presents evacuation routes for the existing RMWMF. Figure 14 presents evacuation routes for the future CWMF. Figure 152 presents emergency response and access information for the existing RMWMF. Figure 16 presents emergency response and access information for the future CWMF. Table 63 lists the emergency equipment typically available at the existing RMWMF. Table 7 lists the emergency equipment that will typically be available at the CWMF. Table 84 lists the emergency coordinators for the RMWMF; these personnel will also serve as emergency coordinators for the CWMF.

Table 63
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Stations/ Showers	• On north wall in south bay • Near office in north bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In hallway between north and south bays
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In hallway between north and south bays
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
	Audible fire alarms	Located throughout the building

Table 63 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Control room, south and north bays
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • By personnel door in southwest corner of south bay • In hallway between north and south bays • By personnel door in west mechanical room
	Portable (D)	In northwest corner of north bay
	Portable (A-B-C)(D)	By personnel door on north wall of north bay
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 142

Table 63 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	On north wall of assay area
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By north wall of assay area
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By north wall of assay area
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
	Audible fire alarms	Located throughout the building

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Office and lab areas
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
Fire Extinguishers	Portable (A-B-C)	• By north personnel door in electrical/mechanical room • In hallway between assay area and north office area • By northwest personnel door of assay area • By east personnel door in southeast counting room
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 124

Table 36 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6925

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By personnel door near center of south wall
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By personnel door near center of south wall
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By personnel door near center of south wall
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
	Audible fire alarms	Located on east and west wall
External Communication System	Telephone	By personnel door in southwest corner of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building
	Portable (A-B-C)(D)	By personnel door near center of south wall
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 142

Table 63 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6926

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	In southeast area of building
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In southeast area of building
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In southeast area of building
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
	Audible fire alarms	Located on east wall and west wall
External Communication System	Telephone	In southeast area of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door on west wall of building
	Portable (A-B-C)(D)	By personnel door on south wall of building
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 142

Table 63 (Concluded)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Modular Storage Buildings

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Buildings 6920 and 6926
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	Buildings 6920 and 6926
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
	Audible fire alarms	Buildings 6920, 6921, 6925, and 6926
External Communication System	Telephones	Buildings 6920 and 6926
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
Fire Suppression	Automatic dry chemical system	Coverage throughout the building

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 7
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6920

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Stations/ Showers	• Near enclosed bulking room in south bay • Near office in north bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In hallway between north and south bays
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In hallway between north and south bays
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
	Audible fire alarms	Located throughout the building

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6920 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Control room, south and north bays
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • By personnel door in southwest corner of south bay • In hallway between north and south bays • By personnel door in west mechanical room
	Portable (D)	In northwest corner of north bay
	Portable (A-B-C)(D)	By personnel door on north wall of north bay
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6921

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	On north wall of assay area
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By north wall of assay area
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By north wall of assay area
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
	Audible fire alarms	Located throughout the building

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6921 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Office and lab areas
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
Fire Extinguishers	Portable (A-B-C)	• By north personnel door in electrical/mechanical room • In hallway between assay area and north office area • By northwest personnel door of assay area • By east personnel door in southeast counting room
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6925

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By personnel door near center of south wall
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By personnel door near center of south wall
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By personnel door near center of south wall
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
	Audible fire alarms	Located on east and west wall
External Communication System	Telephone	By personnel door in southwest corner of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building
	Portable (A-B-C)(D)	By personnel door near center of south wall
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6926

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	In southeast area of building
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In southeast area of building
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In southeast area of building
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in southeast corner of building • By personnel door on west wall of building
	Audible fire alarms	Located on east wall and west wall
External Communication System	Telephone	In southeast area of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in southeast corner of building • By personnel door on west wall of building
Fire Extinguishers	Portable (A-B-C)	• By personnel door in southeast corner of building • By personnel door on west wall of building
	Portable (A-B-C)(D)	By personnel door on southeast corner of building
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Concluded)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Four Modular Storage Buildings (two buildings west of 6920, two buildings in northeast corner of CWMF)

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Buildings 6920 and 6926
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	Buildings 6920 and 6926
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
	Audible fire alarms	Buildings 6920, 6921, 6925, and 6926
External Communication System	Telephones	Buildings 6920 and 6926
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
Fire Suppression	Automatic dry chemical system	Coverage throughout each building

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 84
Radioactive and Mixed Waste Management Facility,
Consolidated Waste Management Facility,
Emergency Coordinator List

April 16, 2003November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Jeff Jarry Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-3080 (office) (505) 561-1138 (pager)	(505) 452-3337
First Alternate	Mike Spoerner Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2813 (office) (505) 540-5296 (pager)	(505) 828-3441
Second Alternate	Phil Zelle Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2486 (office) (505) 540-7437 (pager)	(505) 292-5097
Third Alternate	Mary Ann Krauss Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 845-9997 (office) (505) 540-5228 (pager)	(505) 299-0793
Fourth Alternate	Leroy Duran Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-1488 (office) (505) 530-4105 (pager)	(505) 281-4183

One or more of these personnel are routinely available during operating hours (7:00 am to 5:30 pm, Monday through Thursday).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][13] and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I [6-14-0010-1-03]. General closure information applicable to all RCRA-regulated Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the SNL/NM General Part B. The site-wide Closure pPlan includes a description of the SNL/NM facility,; waste descriptions,; closure performance standards,; general closure methods,; a sampling and analysis plan (SAP), a general closure schedule,; procedures for amendment of the Closure pPlan,; closure certification and reportletter,; and survey plat, and post-closure requirements. Unit-specific information for closure of the existing RMWMF or closure of the future CWMF is included in this section.

7.1 Unit Description

Sandia/DOE use tThe existing Radioactive and Mixed Waste Management Facility (RMWMF) is located in the southeastern corner of TA-III at SNL/NM. It is used and will use the future CWMF for treatment, repackaging, and storage of RCRA-regulated waste. The existing RMWMF is located in the southeastern corner of TA-III at SNL/NM. The RCRA-regulatedwaste management areas (WMAs) at the existing RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the an outdoor waste storage area (i.e., paved areas within the existing RMWMF fence and north, east, and west of Building 6920). The CWMF will be located in the same area, and will include the same WMAs and two additional modular storage buildings.

- Building 6920 (Figure 17) at the existing RMWMF is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 square feet ft^2 of space used for RCRA-regulated treatment and container storage and treatment activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage; one of these rooms is equipped with a fume hood with a local negative-pressure ventilation system. Another room is equipped with a portable local ventilation system. Two areas of the north bay are also equipped with local negative-pressure ventilation systems. The air flow from the ventilation systems passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow. The floors of the north and south bays are coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor. The south bay includes an epoxy coated sump that provides secondary containment for liquids stored in the area. The building also includes a control room, restrooms, and electrical and mechanical rooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored over a sump in the south bay or on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. Contents may also be treated by chemical deactivation, macroencapsulation, stabilization, thermal deactivation, or mechanical processing.

Renovated Building 6920 (Figure 18) in the CWMF will be a single-story CMU and steel building with a control room, restrooms, electrical and mechanical rooms, and approximately 6,100 ft^2 of space used for waste storage, repackaging, and treatment activities. The interior will be separated into staging and storage areas at the east end, and two separate bays (north and south). All WMA floors will be coated with an epoxy finish.

- The south bay of the renovated building will include holding bays and an enclosed room with recessed floors. An additional sump will be located near the south wall of the south bay. The enclosed room will contain two fume hoods with individual negative-pressure ventilation systems. Operations in the south bay will include storage and repackaging (including bulking of liquids). Airlocks used for storage will be located at the east and west ends of the south bay.

- Two areas of the renovated north bay will be equipped with local negative-pressure ventilation systems, and two fume hoods with individual exhaust systems. The air flow from the ventilation systems will pass through a HEPA filter train before being released to the environment through an exhaust stack. The filters will effectively remove particulates entrained in the air flow. Operations will include storage and treatment. Containers of liquids will be stored on portable spill containment pallets. Two additional storage areas will be located on the east end of the north bay.

- Building 6921 (Figure 19) is a single-story CMU building with approximately 1,450 ft^2square feet of space used for RCRA-regulated treatment and container storage and treatment activities in three areas. The concrete floors are covered with a chemical-resistant epoxy coating. One room contains a fume hood with a local negative-pressure ventilation system. The exhaust from the system passes through a HEPA filter train before being released to the environment through an exhaust stack. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. Contents may also be treated by chemical deactivation, macroencapsulation, or stabilization.

  RCRA-regulated WMAs and operations in CWMF Building 6921 will be the same as the areas and operations in RMWMF Building 6921.

- Buildings 6925 and 6926 (Figure 20) are each 4,000-ft^2square-foot prefabricated steel buildings on concrete foundations. The buildings are used for container storage of RCRA-regulated wastes, and Building 6925 is also used for treatment. The concrete floors are covered with a chemical-resistant epoxy coating. The buildings are used for storage of wastes in containers.Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities.

  The WMA and operations in CWMF Building 6925 (Figure 21) will be the same as the area and operations at RMWMF Building 6925. Building 6926 (Figure 21) will be

renovated to include seven holding bays with recessed floors covered with a chemical-resistant epoxy finish.

- Two modular, prefabricated safety storage structures located west of Building 6920 are used for the container storage of RCRA-regulated reactive and ignitable wastes. Each structure (Figure 22) is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. The inside surfaces are covered with a chemical-resistant epoxy coating.

  RCRA-regulated WMAs and operations in the CWMF modular buildings west of Building 6920 will be the same as the areas and operations in the existing RMWMF. Two additional modular prefabricated storage buildings will be located in the northeast corner of the CWMF; these buildings will be similar to the existing buildings, and the operations will also be similar.

- The outdoor waste storage area consists of 48,500 ft^2 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence. This area that may be used for container storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers at this WMA. Containers with liquids are stored on portable spill containment pallets inside the transportainers.

  The two additional CWMF modular buildings (similar to those shown in Figure 22) will be installed in this area. They will have no effect on the outdoor storage area other than reducing its capacity. The operations in the CWMF outdoor storage area will be the same as the operations in the current RMWMF outdoor storage area.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum total volumeinventory of RCRA-regulated waste in treatment and/or storage and/or treatment at any time at the existing RMWMF is estimated at approximately 209,550 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volumeinventory is broken down as follows:

- Building 6920: 13,420 gallons
- Building 6921: 7,810 gallons
- Building 6925: 83,160 gallons
- Building 6926: 83,160 gallons
- Modular storage building TP150: 1,100 gallons
- Modular storage building TP153: 1,100 gallons
- Outdoor waste storage areas: 19,800 gallons

The maximum total volume of RCRA-regulated waste in treatment and/or storage at any time at the future CWMF is estimated at approximately 322,919 gallons of liquids and/or solids. This is

the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volume is broken down as follows:

- Building 6920: 57,070 gallons
- Building 6921: 7,810 gallons
- Building 6925: 83,160 gallons
- Building 6926: 73,419 gallons
- Modular storage building TP150: 1,100 gallons
- Modular storage building TP153: 1,100 gallons
- Two additional modular buildings: 5,000 gallons each
- Outdoor waste storage area: 15,840 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan in Appendix F of the SNL/NM General Part B, partial closure activities specified in this plan assume the following conditions were met during the operational life of the RMWMF and CWMF:

- RCRA-regulated Wwaste -handling and treatment activities that involvedding the opening of waste containers of RCRA-regulated waste were confined to the RMWMF and CWMF RCRA-regulated WMAs. If contamination occurred, it would have been confined to those areas.; and

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during treatment activities, they would only be present in the systems up to the first filter.

- The WMAs are physically separate; therefore, each WMA is considered independently of the other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- Containers of wastes were not routinely stored on the asphalt in the outdoor storage area. Containers were occasionally staged there temporarily if needed to accommodate operations involving large numbers of containers (e.g., staging for shipments). Containers of liquids were stored on spill pallets and were not stored directly on the asphalt. Containers of waste were not opened in the area, therefore, RCRA-regulated wastes or hazardous waste constituents are not present on the asphalt unless there is knowledge or evidence of a release.

- Containers of waste were stored in steel transportainers in the outdoor storage area. Containers of liquids were not routinely stored within the transportainers; those that were present were stored on spill pallets. Containers of waste were not opened within the transportainers; therefore, RCRA-regulated wastes or hazardous waste constituents are not present in any transportainer unless there has been a release in that transportainer.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the WMAs where wastes were managed.

- The interior walls and floors of the WMAs in each building were maintained to retain their integrity by following established maintenance and inspection procedures, and breaches of protective coatings did not occur, and a small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the RMWMF and/or CWMF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- Items of equipment within the treatment areas will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that are most likely to be removed include local exhaust systems (up to the first filter), filters, and portable equipment. Items that are most likely to be decontaminated include the interiors of fume hoods.

- Transportainers used for storage in the outdoor waste storage area will be visually examined for evidence of releases. Additional closure activity will be limited to those areas where RCRA-regulated wastes or hazardous waste constituents could be present due to visual evidence of releases or knowledge of prior releases. The transportainers will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The modular storage buildings (TP150 and TP153) will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. During closure of the CWMF, the additional modular storage buildings will be evaluated in the same manner.

- The floors of each treatment and/or storage WMA will be decontaminated by sweeping and washing as described in Section F.5, except as noted in this section.

- The asphalt in the outdoor waste storage area will be visually examined for evidence of deterioration and releases. Decontamination or removal of the asphalt will be limited to areas where there is visual evidence or documentation indicating a release of RCRA-regulated wastes or hazardous waste constituents has occurred.

7.4.2 Closure Schedule

Section F.7 of the site-wide cClosure pPlan in Appendix F provides a timeline for closure activities applicable to all permittedRCRA-regulated Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the existing RMWMF or the future CWMF. The planned renovation activities at the future CWMF do not include closure of any of the WMAs at the existing RMWMF. but Aa Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the RMWMF or CWMF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide cClosure pPlan in Appendix F presents general sample collection equipment and techniques applicable to all RCRA-regulated Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the existing RMWMF or future CWMF in accordance with the requirements of 20 NMAC 4.1.500/ 40 CFR 264, Subpart G [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure standardscriteria, QA and quality control /[QC] procedures, etc.) regarding RCRA closure of the RMWMF and future CWMF.

7.5.1 Sampling and Analysis ScopeProject Description

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and, where appropriate, secondary containment surfaces and fume hood interiors walls of the six of the WMAs at the existing RMWMF (Buildings 6920, 6921, 6925, and 6926; and the two modular storage buildings); and similar samples from the transportainers at the outdoor waste storage area). Initial wipeAll of the samples will be taken analyzed to verify that stored RCRA-regulated wastes have not contaminated the WMAs. The wipe samples will be analyzed fordetermine concentrations of a set of indicator compounds parameters selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator compounds parameters and the applicable criteria for clean closure are identified in Tables 95 and 10, and the rationale for their selection is presented in Section 7.5.3. If initial sampling confirms the absence of contamination in the structures, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or those areas will be decontaminated and re-sampled to verify they have been cleaned, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.

Table 9
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA, except for fume hoods (representative of material removed from entire floor surface)	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	5.6 ppm 130 ppm <1 ppm 17.3 ppm 21.4 ppm <0.25 ppm <1 ppm <1 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Same as above	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the existing RMWMF and future CWMF due to their typical presence in the wastes stored at each~~the~~ Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 10
Radioactive and Mixed Waste Management Facility, Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c]
Building 6920 (Figure 17)	$S_1 – S_7$	4	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	S_8	4[d]	Same as above	Same as above
	S_9 (Fume Hood)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
	$N_1 – N_7$	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6921 (Figure 19)	WA	4	Same as above	Same as above
	WT_1, WT_2	4	Same as above	Same as above
	Fume Hood	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6925 (Figure 20)	A - B	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6926 (Figure 20)	A - B	4	Same as above	Same as above
Modular Storage Buildings (Figure22)	A	4[d]	Same as above	Same as above
Outdoor Storage Area	Each Transportainer	4	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the existing RMWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: (1) the joint guidance developed by the National Association of Attorneys General (NAAG) and the NAAG/DOE Working Group, *Sharing of Radionuclide Information with States*, dated September 1998, and (2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico for Environmental Oversight and Monitoring, dated November 29, 2000.

[d] Secondary containment surfaces (bottoms and sides) will be washed up to the secondary containment level.

[e] The interior surfaces of fume hoods will be washed.

The same approach will be used for sampling and analysis of samples from the WMAs at the future CWMF (Buildings 6920, 6921, 6925, and 6926; the four modular storage buildings, and transportainers at the outdoor waste storage area). Indicator parameters and applicable criteria for clean closure are identified in Tables 9 and 11, and the rationale for their selection is presented in Section 7.5.3.

~~This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describes the indicator compound levels that will be used to verify that clean closure has been achieved.~~

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA within a building, except for fume hoods, and of each transportainer at the outdoor storage area will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

Two samples of used wash water and two samples of used decontamination rinse water will be collected from each area indicated in Tables 10 or 11. Used wash water will be contained in the bays, in temporary berms, or other containment devices; sampled; and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.~~Selection of sample locations on the wall and floor surfaces in the RMWMF WMAs will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor and wall surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at identified locations of stains and discolorations on surfaces, if any are identified).~~

~~Random sample locations have been identified in this SAP, whereas additional biased sample locations will be identified at the time of closure. Table 5 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, floor and wall surfaces in each of the RMWMF WMAs were stratified into five general sample areas (floor, north wall, south wall, east wall, and west wall), with the exception of the outdoor waste storage area, as there are no walls to be sampled. Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

Table 11
Consolidated Waste Management Facility
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c]
Building 6920 (Figure 18)	$S_1 – S_{10}$	4[d]	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	$S_{11} – S_{13}$	4	Same as above	Same as above
	$S_{14} – S_{15}$ (Fume Hoods)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
	$N_1 – N_9$	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	$N_{10} – N_{11}$ (Fume Hoods)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6921 (Figure 19)	WA	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	WT_1, WT_2	4	Same as above	Same as above
	Fume Hood	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6925 (Figure 21)	A - B	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6926 (Figure 21)	A – D, F – H	4[d]	Same as above	Same as above
	E	4	Same as above	Same as above
Modular Storage Buildings (Figure 22)	A	4[d]	Same as above	Same as above
Outdoor Storage Area	Each Transportainer	4	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the future CWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: (1) the joint guidance developed by the National Association of Attorneys General (NAAG) and the NAAG/DOE Working Group, *Sharing of Radionuclide Information with States*, dated September 1998, and (2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico for Environmental Oversight and Monitoring, dated November 29, 2000.

[d] Secondary containment surfaces (bottoms and sides) will be washed up to the secondary containment level.

e The interior surfaces of fume hoods will be washed.

~~RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each floor and wall grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 6 provides an example of how these random sample coordinates are located, and Figures 13 through 16 show the sampling grids for each RMWMF WMA.~~

~~The entire floor surfaces will be gridded for random sampling, and the wall grids will be limited to a height of 5 feet above the floor surface, which includes the areas most likely to have been affected by waste management activities in the Unit.~~

~~Table 5~~
~~Radioactive and Mixed Waste Management Facility~~
~~Summary of Random Sampling Program~~

~~WMA[a]~~	~~Grids[b]~~	~~Wall Samples per Grid~~	~~Floor Samples per Grid~~	~~Indicator Parameters[c]~~	~~Closure Standard[d] ($\mu g/m^2$)~~
~~Building 6920~~	~~S_1—S_7~~	~~4~~	~~1~~	~~Arsenic~~ ~~Barium~~ ~~Cadmium~~ ~~Chromium~~ ~~Lead~~ ~~Mercury~~ ~~Selenium~~ ~~Silver~~	~~387~~ ~~109,752~~ ~~1,557~~ ~~4,704~~ ~~270~~ ~~157~~ ~~7,839~~ ~~7,839~~
	~~S_8~~	~~0~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~N_1—N_7~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6921~~	~~WA~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~WT_1, WT_2~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6925~~	~~A~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~B~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6926~~	~~A~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~B~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Modular Storage Bldgs.~~	~~A~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~

~~[a] RCRA-regulated wastes were not routinely stored in the outdoor waste storage area, and when present, were typically stored on portable spill containment pallets inside the transportainers. The outdoor waste storage area will undergo biased sampling if there is evidence of a release.~~

[b] Refer to Figures 13 – 16 for locations of sample grids.

[c] RCRA toxicity characteristic metals have been selected as indicator constituents to demonstrate clean closure at the RMWMF; see section 7.5.3 for additional information.

[d] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.

Table 6
Radioactive and Mixed Waste Management Facility
Example Random Sample Locations

WMA	Grid	Xmin, Xmax (inches)	Ymin, Ymax (inches)	Random X-coordinate (inches)[a]	Random Y-coordinate (inches)[a]
Building 6925	A (Floor)	1 – 600	1 – 480	62	45
	A (S. wall)	1 – 60	1 – 600	9	545
	A (N. wall)	1 – 60	1 – 600	26	460
	A (W. wall)[b]	1 – 60	1 – 480	53	154

[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.
[b] As shown on Figure 15, there is no east wall in Building 6925 Grid A.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA, as discussed above, prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 9.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 9, 10, or 11, as appropriate.The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.

Dry wipe sampling is proposed for this project, and will be conducted in accordance with the following procedures:

- Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 6. Using these coordinates as the center point, delineate a 1 square foot area around this point.

- Don clean, dry, lightweight cotton gloves.

- Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.

- Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.

This process will be repeated until all floor and wall grids have been wipe sampled.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.The following equipment will be required for the wipe sampling to be conducted at the RMWMF:

- Lightweight, white, cotton gloves (clean-room type)

- Stainless steel forceps or tweezers

- Filter paper wipes (Whatman® No. 40, 4.25 cm diameter, or equivalent)

- A 1 square foot template made from inert material (e.g., Teflon, etc.)

- Precleaned 4 oz. or 8 oz. wide-mouth glass jars with screw-top lids

- Insulated shipping cooler with frozen, gel-type cooling material and cushioning packaging

- Sample collection and custody forms, sample numbers, labels, chain of custody forms, etc.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE.

Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) willis not be required for the wipe sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5Sample Documentation and Custody

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Preservation method
- Analysis required

A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.

7.5.2.67.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, fume hoodwest wall, etc.), the grid identifiernumber, the sample type (e.g., soil, rinse waterrandom or bias), and any additional information that may be necessary. As an example, the sample numbered F-6925-B-FLEW-RINSERAND-01 would indicate the random

filtered rinse water sample taken from the water used to rinse the floor of Grid B on the east wall ofin Building 6925.

7.5.2.77.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., . For example, the recommended maximum holding time for metals analysis is 6 months180 days from sample collection until extraction).

7.5.2.8Waste Management

Minimal quantities of waste will be generated through the wipe sampling procedures at the RMWMF, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the RMWMF will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

7.5.3 Demonstration of Clean Closure

Hazardous wasteRCRA toxicity characteristic metals have been selected for use as indicator parameters to demonstrate clean closure at the RMWMF, as these constituents are present in many of the wastes were commonly treated or stored in the Unit. Other wastes treated or stored in the RMWMF typically were are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005 waste codes). Wipe sSampling floor sweepings (soil) or decontamination wash and rinse watersof concrete and metal surfaces is of limited valuenot a valid method for determining the presence of D001, D002, or D003 waste residuals. In addition, and given their volatility, of F001-F005 constituents, they would not likely be present on the floor, secondary containment, or interior fume hoodbuilding surfaces even if they these constituents had been released in the past. If residual contamination is present on these floor and wall surfaces of the RMWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, wipe samples will be analyzed for RCRA hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B/7471A, or an equivalent method.

Results from initial wipe sampling of the floor and walls in the RMWMF will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If wipe sampling results for the selected indicator parameters are lower than the associated cleanup level, as presented in Table 5, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria.Analytical results from floor sweeping (soil) samples will be compared to background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for

these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the wipe sample resultsconcentrations of indicator parameters are substantially elevatedgreater than the cleanup level, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.13 of the site-wide cClosure pPlan.

Sandia/DOE will use the same approach to demonstrate clean closure of the future CWMF. Hazardous waste toxicity characteristic metals will be used as indicator parameters to demonstrate clean closure, as these constituents are present and will be present in many of the wastes commonly treated or stored in the Unit. Other wastes that will be treated or stored in the CWMF typically will be regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters will be of limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor, secondary containment, or interior fume hood surfaces even if these constituents had been released in the past. If residual contamination is present on these surfaces of the CWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. Analytical results from floor sweeping (soil) samples and from decontamination wash and rinse water samples will be compared, as discussed above for the RMWMF, to establish appropriate management requirements for the soil and to demonstrate clean closure of the CWMF.

7.5.4 Quality Control

Quality control (QC) for wipe sampling and analysis at the existing RMWMF and future CWMF will be implemented as described in Section F.6 of the site-wide closure plan. to ensure that the data collected provides useful information to document clean closure of the Unit. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.

The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:

- Blank Spike Analysis — The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameters (RCRA metals) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.

- Method Blank — An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe

samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures. Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.Initial data reduction and validation will be done by the laboratory contracted to analyze the wipe samples. The laboratory will report the data in accordance with their internal quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.

Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.

7.6 Decontamination and Verification Procedures

Section F.5.23 of the site-wide cClosure pPlan in Appendix F presents general decontamination and verification procedures applicable to all RCRA-regulated waste management Units at the SNL/NM facility. Prior to closure, this Unit-specific Closure Pplan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific Closure Pplan will be submitted to NMED for approval prior to initiation of closure activities at the existing RMWMF or future CWMF.

8.0 TREATMENT PLAN

Treatment operations for RCRA-regulated wastes treated at the existing RMWMF are described in this section. Operations for the future CWMF are also described.

The following treatment technologies may be used to treat RCRA-regulated wastes at the existing RMWMF and future CWMF:

- Chemical deactivation,
- Thermal deactivation,
- Amalgamation,
- Stabilization,
- Macroencapsulation, and
- Physical treatment.~~,~~
- ~~Stabilization, and~~
- ~~Thermal deactivation.~~

Sandia/DOE may use each technology to treat any of the wastes in the General Part A that include the particular technology in the process description. Treatment at the existing RMWMF may occur in Buildings 6920, 6921, and 6925~~, and 6926~~. Treatment at the future CWMF may occur in the same buildings. Treatment (except some physical treatment) is and will be conducted in containers; therefore, it is not subject to the miscellaneous unit and environmental performance standards in 20 NMAC 4.1.500/40 CFR 264, Subpart X [~~6-14-00~~10-1-03]. Treatment effectiveness for each waste stream is discussed in Section 8.3~~2~~.

8.1 Treatment Operations

Waste treatment is performed at the existing RMWMF and will be performed at the future CWMF for one or more of the following reasons:

- T~~t~~o meet land disposal restrictions (LDRs);
- To allow for the safe storage of the waste; and/or
- T~~t~~o meet treatment, storage, or disposal facility (TSDF) requirements.

All of the treatment at the RMWMF is batch treatment performed on single packages of waste (each package is one 55-gallon drum or less, or a single item that may be larger than a drum. Each type of treatment is ~~will be~~ performed on batches of 500 pounds of waste or less, with the exception of physical treatment, which may occasionally involve very large, heavy items. Liquid wastes are ~~will be~~ treated in batches of 60 gallons or less. Treatment operations at the future CWMF will be the same as those conducted at the existing RMWMF.

Waste treatment may generate secondary waste streams (treatment residues). RCRA-regulated treatment residues may undergo additional on-site treatment to meet LDRs and/or be sent to an appropriate off-site TSDF.

The waste treatment processes described in this section are effective in addressing hazardous~~RCRA-regulated~~ characteristics in RCRA-regulated wastes, including the following:

- Solid items exhibiting the hazardous wasteRCRA-regulated characteristics of ignitability or reactivity may be chemically or thermally deactivated to eliminate the characteristic(s).

- Liquid waste exhibiting the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity may be chemically or thermally deactivated to remove the RCRA-regulated characteristic(s).

- Reactive (explosive) wastes may be treated using thermal deactivation techniques.

- Elemental mercury may undergo amalgamation to reduce or eliminate the leaching potential.

- Liquid wastes and particulates containing hazardous waste toxicity characteristic metals (excluding elemental mercury and high mercury subcategories) may be stabilized to reduce or eliminate the leaching potential of the hazardous waste constituents.

- Debris and wastes containing RCRA-regulated constituents hazardous waste toxicity characteristic metals (excluding elemental and high mercury subcategories defined in 20 NMAC 4.1.800/40 CFR 268) may be macroencapsulated to reduce or eliminate the leaching potential of the hazardous waste constituent(s).

- Solid items with hazardous constituents may be physically separated from larger items, and the size of individual pieces may be reduced.

- Pressurized containers may be punctured or opened to release the contents.

Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes may or may not require further management as hazardous wastes, as discussed in Appendix B, Section B.2.5. In accordance with LDRs, the following are managed as RCRA-regulated waste: treatment residue derived from the treatment of listed RCRA-regulated wastes, treated waste containing listed RCRA-regulated waste, and treated waste which continues to exhibit RCRA-regulated waste characteristics and/or does not meet treatment standards for underlying hazardous constituents.

Each waste treatment technology or process listed above is described in the following sections.

8.1.1 Chemical Deactivation

Sandia/DOE perform chemical deactivation in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. The containers vary in size depending on the quantity of waste to be treated, and include laboratory glassware, 5-gallon buckets, and 55-gallon drums.

Sandia/DOE will perform chemical deactivation using the same methods in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

Chemical deactivation refers to a number of chemical processes that can eliminate the hazardousRCRA-regulated waste characteristics of ignitability, corrosivity, and/or reactivity. Deactivation can be accomplished by several technologies (e.g., neutralization or, chemical oxidation, or stabilization). However, the intent of this section is to identify and describe specific methods or treatment trains which may be used at the existing RMWMF and future CWMF to deactivate ignitable wastes defined in 20 NMAC 4.1.200/40 CFR 261.21(a)(2) and (4) [6-14-0010-1-03], corrosive and reactive wastes defined in 20 NMAC 4.1.200/40 CFR 261.23 [6-14-0010-1-03]. Deactivation may or may not result in a final waste form, depending on the process, and may be used as the first in a series of treatment steps.

Deactivation processes are conducted under carefully controlled conditions so that RCRA-regulated waste with the characteristic of reactivity is allowed to react in a slow, nonviolent manner. Allowing the reactive potential of the waste to be dissipated in this manner reduces or eliminates the reactive characteristic of the waste. Deactivation of reactive wastes is typically conducted in small batches under laboratory conditions such that process control can be easily maintained.

- Hydrides, deuterides, and tritides are deactivated by slow addition to an ice water bath.
- Deactivation of water reactive metals such as elemental sodium and lithium involves the slow and controlled addition of an appropriate alcohol/water solution. Alcohol/water addition is maintained until the water reactive potential of the waste has been eliminated.
- Deactivation of pyrophoric metal powders and particulates may be achieved by mixing waste in a portland cement matrix.
- Water-soluble oxidizers in particulate form are slowly dissolved in water to deactivate them as the first step in the treatment process. The resulting solution may undergo further treatment (e.g., neutralization and stabilization).
- Water-soluble concentrated liquid oxidizers such as hydrogen peroxide may be diluted with water in a controlled manner to make them safer to handle before deactivation with an appropriate chemical agent such as iron filings.

Chemical deactivation to remove the characteristic of corrosivity is the process of removing excess acidity or alkalinity from an aqueous liquid waste. Other uses may include pH adjustment to facilitate subsequent treatment; such pretreatment through deactivation may be necessary to prevent corrosive damage to equipment, deter undesirable reactions, and preclude the formation of unwanted byproducts.

Reagents added to achieve a desired pH are combined with liquid waste inside a mixing vessel or directly in the waste container. Common deactivating reagents include, but are not limited to, caustic soda, lime, phosphine, calcium or sodium carbonate, sodium hydroxide, and limestone for acid wastes; and hydrochloric, phosphoric, or nitric acids for alkaline wastes. The selection of reagents is dependent on the quantity of reagent required, cost, availability, and the potential byproduct(s). These deactivation processes are conducted under carefully controlled conditions in which the reagent is added to the waste slowly and mixed thoroughly. This allows the reaction to proceed in a nonviolent manner and allows the energy to be dissipated effectively. Ice may be used if needed to cool the mixture during the reaction. In the case of reactions that are expected to be strongly exothermic, wastes may be treated in small batches under

laboratory conditions (similar to the deactivation of reactive wastes) such that process control can be easily maintained.

8.1.58.1.2 Thermal Deactivation

Sandia/DOE perform thermal deactivation of reactive RCRA-regulated wastes, including batteries, static-sensitive explosives, and explosive components, in a Sandia-designed and tested portable deactivation device that meets the definition of a container in 20 NMAC 4.1.100/40 CFR 260.10. The device is a thick-walled stainless steel vacuum apparatus equipped with an internal heated plate and sensors to measure temperature and pressure. The explosive deactivation device was designed to contain a detonation of 25 grams TNT-equivalents of explosive waste. The inside diameter of the cylinder is 8 inches, and it is 18 inches long. Because the device is portable, it may be used in any of the treatment areas in Building 6920 or 6921. It is shown in Figure 17.

Sandia/DOE will perform thermal deactivation in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

ReactiveExplosive waste is placed on the plate, inserted into the cold unit, the unit is sealed and filled with an inert atmosphere (e.g., nitrogen), and the temperature of the heated plate is slowly raised until reaching a temperature at which the explosive being treated decomposes. Personnel use waste characterization data and/or published chemical information (e.g., "DOE Explosives Safety Manual" [DOE, 2002] or other chemical or engineering handbook) to determine the required temperature. The temperature is maintained for two hours to complete the decomposition. The unit is then cooled and decomposition gases are vented to a chemical fume hood with a high-efficiency particulate air filtration system.

8.1.68.1.3 Amalgamation

Sandia/DOE perform amalgamation of small quantities of elemental mercury in small (e.g., laboratory) containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The amalgamation process for liquid elemental mercury involves mixing liquid mercury waste with a powdered base metal. The amalgamation process immobilizes elemental mercury into a solid leach-resistant form that has minimal potential for emission of mercury vapor.

Sandia/DOE will perform amalgamation in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

The two important operating parameters for effective treatment are: (1) the ratio of base metal to mercury, and (2) the efficiency of mixing. Copper or zinc areis typically used as base metals, but tin, nickel, gold, and sulfur may also be used. The base metal may be pretreated with acid to improve the effectiveness of the amalgamation reaction. For the small quantities of mercury that will be treated at the RMWMF, hand mixing the mercury and base metal using a mortar and pestle is sufficient to create an amalgam with uniform properties.

8.1.4 Stabilization

Sandia/DOE perform stabilization in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. Stabilization is a process of binding hazardous waste RCRA-regulated metals so that the metals become chemically part of the matrix or are physically bound within the matrix. The primary use of stabilization is to immobilize toxicity characteristic metals but many stabilization agents also eliminate free liquids. Typical waste forms suitable for stabilization include liquids, soils, and particulate-type wastes.

Sandia/DOE will perform stabilization in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

Process equipment for mixing waste and binder materials depends on the type of reagents used and the volume of waste to be treated. In-drum mixing is typically used for large volume waste quantitiesstreams. Once waste and binder have been thoroughly mixed and placed in a container, the mass is allowed to cure and/or set. Smaller batches may be mixed by hand and allowed to cure in smaller containers (e.g., 5-gallon pails, and tubs and trays of various sizes).

Development of appropriate formulas is waste specific. Stabilization agents for toxic metals may include portland cement, pozzolansic, thermoplastics, organic polymers, and clays. However, other waste forms may require proprietary reagents that are available for specific applications. Additional reagents may be added to reduce contaminant leachability, reduce cure and/or set time, and increase strength.

Waste characteristics that are important to the success of the stabilization process for liquids may include volume percent of water, oil, solvents, or other organics; pH; and hazardous RCRA-regulated waste constituents. Waste characterization data are used to determine whether the waste is amenable to stabilization, any necessary pretreatment requirements, and the appropriate binding agent.

Once stabilization is selected, the binding agent is identified based on chemical compatibility with the waste form and contaminants present. Pretreatment may be required to assure compatibility between the waste and the binding agent (e.g., neutralization of liquid wastes to an acceptable pH range of 5.0 to 11.0). Once the proper binding agent(s) have been identified, bench-scale testing is performed to determine optimum amounts of each agent. In the case of low volume waste streams (e.g., less than approximately 0.26 gallons), bench-scale testing may not be practical and treatment is performed without bench-scale testing using the manufacturer's suggested quantities or by estimating binding agent quantities from previous experience. The stabilization process is performed by combining the predetermined quantities of binding agent(s) with the waste and thoroughly mixing, if appropriate. The resulting mixture is staged to allow an appropriate cure time.

8.1.28.1.5 Macroencapsulation

Sandia/DOE perform macroencapsulation in containers in Buildings 6920, 6921, and 6925 at the RMWMF. Macroencapsulation is generally applicable to debris or specific wastes, whereas stabilization (see Section 8.1.4) is generally applicable to liquids, sludges, and particulate-type wastes. Macroencapsulation is the process of completely encasing waste within a polymer

coating or concrete, or within a jacket of inert inorganic materials. The primary use of macroencapsulation is to immobilize wastes such as debris-type solids containing hazardous wasteRCRA-regulated constituents by completely surrounding the waste material with a leach-resistant coating.

Sandia/DOE will perform macroencapsulation in the same manner in treatment areas in Buildings 6920 (north bay), 6921, and 6925 at the future CWMF.

Sandia/DOE pPerforming macroencapsulation using one of three processes:
involves coating waste with polymer agents within a mold or

- Eencasing the waste in concrete, typically within a larger container that serves as a mold.

- Coating the waste with polymer agents within a mold. Polymers typically used for macroencapsulation include, but are not limited to, asphalt, polyethylene, thermosetting plastics, and resins that can be polymerized under ambient temperatures in the presence of a catalyst. Equipment used for macroencapsulation may include molds, polymer extrusion equipment, and resin mixing equipment. In-drum macroencapsulation may also be performed with the drum acting as the mold. Temperature control of polymer macroencapsulation processes is critical and carefully maintained to assure that adequate coating occurs.

  For example, Sandia/DOE perform macroencapsulation with a chemically inert resin (typically polyethylene), using 30-gallon containers (metal baskets). Each The basket containing the solid RCRA-regulated waste items is placed in a 50-gallon mold (similar in size and shape to a 55-gallon drum). The basket is designed to fit into the mold with one to two inches of clearance on all sites, the top, and the bottom. The mold containing the basket and waste items that is then filled with melted resin that is heated using a commercially available extrusion unit. Each basket is used only once because it becomes encapsulated within the inert resin and is part of the final waste form. After the resin cools and solidifies, the mold is removed, the waste form is turned over and more polyethylene is added to form a final cap on the end. The completed waste form is a cylinder slightly smaller than a 55-gallon drum.

- Placing the waste inside a commercially available container made of an inert resin such as polyethylene. After the wastes and inert void-filler materials are placed in the container, the resin is heated to seal the container and lid (e.g. using a resistance-heated wire system embedded in the container lid). The container may also include an outer metal shell to provide additional structural strength. Sandia/DOE use containers of various sizes, depending on the volume of waste items to be macroencapsulated.

8.1.38.1.6 Physical Treatment

Sandia/DOE perform physical treatment (volume reduction through separation) in Buildings 6920 and 6921 at the RMWMF.

Sandia/DOE will perform physical treatment in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

The treatment includes:

- consists of Rreducing waste volume by using commercially available tools (e.g., hammers, screwdrivers, wrenches, pliers, saws, drills, cutters, etc.) to separate items with hazardous wasteRCRA-regulated constituents from larger items or from each other, including removal of coating and filler materials. In some cases, the RCRA-regulated waste item may undergo further physical treatment or treatment in containers.

- Removing coating and filler materials (e.g. resins) by dissolution in containers (e.g., trays or pails) in order to facilitate separation of items with hazardous waste constituents from each other or from other items. Dissolution may take place within the fume hood(s) that are present in each building. The dissolved material may undergo further treatment in containers.

- Reducing the size of waste items by using tools (e.g. mallets, cutters, etc.) to crush or cut items into smaller pieces. The pieces may undergo further treatment in containers.

- Physical treatment also includes puncturing aerosol cans within a container to allow recovery of the contents. The liquid contents of the aerosol cans are collected in the container, and any gaseous propellants are filtered through a carbon filter attached to the container. Liquids collected may undergo further treatment in containers.

- Releasing pressurized contents of containers other than aerosol cans (e.g., gas cylinders). Organic gaseous contents are filtered through a carbon filter. All gaseous contents are vented to a chemical fume hood with a high-efficiency particulate air filtration system.

8.1.78.2 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Most of the RCRA-regulated wastes treated at the existing RMWMF and future CWMF are inorganic and are not expected to generate emissions during treatment. Unit personnel perform chemical reactions that could generate emissions (deactivation and stabilization) in a controlled manner as described above to further minimize potential air emissions. Treatment operations that may generate air emissions of gases, vapors, or particulates are conducted in a controlled manner within fume hoods or with other local ventilation if possible. Each fume hood provides an enclosed work area equipped with a localized exhaust system. Air flow from each fume hood passes through a high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The filters do not remove organic constituents entrained in the air flow. RMWMF Unit personnel employ the practices described in Section 8.2 of the General Part B to prevent releases of organic constituents to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

The existing RMWMF and future CWMF treatment operations do not employ processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA.

8.2.2 Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [6-14-0010-1-03]. Equipment used in such service at the existing RMWMF and future CWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-0010-1-03]. The equipment location will be noted in the existing RMWMF and future CWMF records. Equipment use will also be noted in the records.

8.2.3 Subpart CC

Unit personnel follow the practices described in Section 8.2 of the SNL/NM General Part B. Unit personnel do not perform any treatment subject to Container Level 3 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]).

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

8.28.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

As required in 20 NMAC 4.1.900/40 CFR 270.23(d) [6-14-0010-1-03], Sandia/DOE evaluate treatment effectiveness by appropriate methods for each batch of waste treatedconsiderations and demonstrations are provided for the treatment technologies used or proposed for use at the existing RMWMF, and will continue to do in future CWMF operations. In many cases (e.g. stabilization), Unit personnel treat small samples of a batch of waste using a single agent in various proportions or using various agents to determine which is most effective. That process is then used in treating the rest of the waste. Treatment effectiveness will be verified through Characterization evaluation of the treated waste is described in accordance with Appendix B (Section B.2.53.3.2) of the SNL/NM General Part B.

8.3.1 Chemical Deactivation

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for completeness of chemical reaction for solid items that were treated to remove the characteristic of reactivity.
- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Check whether treated waste is an oxidizer as defined in 40 CFR Part 173.
- Visual check for liquids that were treated to remove the characteristic of reactivity.
- Fingerprint chemical check for the presence of sulfides and cyanides if their presence caused the waste to be reactive.
- Fingerprint check for pH of liquids that were treated to remove the characteristic of corrosivity.

8.3.2 Thermal Deactivation

Unit personnel check treatment effectiveness through proper operation of the unit (maintaining specified decomposition temperature for specified length of time). In some cases, personnel may visually check for evidence of chemical reaction (e.g., color change or structural change) in the solid item.

8.3.3 Amalgamation

A sample of each batch of treated waste is analyzed for the presence of mercury using the toxicity characteristic leaching procedure (TCLP) as described in Appendix B.

8.3.4 Stabilization

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for the presence of free liquids.
- Paint filter test to determine whether free liquids are present if the treated waste is amorphous and may contain some liquids.
- Analysis of one or more samples of the treated waste using the TCLP for hazardous waste toxicity characteristic metals. If the stabilization is intended to meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40, the analysis will include underlying hazardous constituents as described in Appendix B.

8.3.5 Macroencapsulation

Unit personnel visually check each macroencapsulated item to verify that it is completely encased in the inert resin or concrete.

8.3.6 Physical Treatment

Unit personnel check treatment effectiveness using one of more of the following methods (depending on the goal of the treatment performed):

- Visual check that item(s) with hazardous waste constituents has(ve) been completely separated from other item(s).
- Visual check that pieces are the desired size.
- Visual check that punctured aerosol cans are empty and the contents are in the container.
- Leaving the container for a time to allow it to continue venting after visual and/or audible evidence indicates it is empty. The length of time would be determined by the size of the container, the contents, and the strength of the evidence.

9.0 REFERENCES

DOE, see US Department of Energy

DHHS, see US Department of Human Health Services

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2001, "Standard for Water Spray Fixed Systems for Fire Protection", NFPA 15, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, " Standard for Dry Chemical Extinguishing Systems," NFPA 17, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 20043, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 75.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 1996, "DOE Explosives Safety Manual" DOE M 440.1-1, U.S. Department of Energy, Washington, D.C.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

U.S. Department of Energy (DOE), 2002 "DOE Explosives Safety Manual, LLNL Work Smart Standards Version" Lawrence Livermore National Laboratory, Livermore California

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

Sandia National Laboratories/New Mexico Radioactive and Mixed Waste Management Facility Part B Permit Application

Module III

Revision 4~~3~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... RMWMF-iii
LIST OF FIGURES ..... RMWMF-iv
ACRONYMS AND ABBREVIATIONS ..... RMWMF-v
1.0 GENERAL UNIT OPERATIONS RMWMF-2
1.1 Designated Waste Management Areas RMWMF-2
1.1.1 Building 6920 ..... RMWMF-3
1.1.2 Building 6921 ..... RMWMF-443
1.1.3 Buildings 6925 and 6926 ..... RMWMF-4
1.1.4 Modular Storage Buildings (TP150 and TP153) RMWMF-454
1.1.5 Outdoor Waste Storage Area RMWMF-554
1.2 Unit Operations RMWMF-5
1.2.1 Operation of Containment Systems RMWMF-665
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes RMWMF-665
1.2.3 Preparedness and Prevention RMWMF-776
1.2.3.1 Required Equipment RMWMF-776
1.2.3.2 Testing and Maintenance of Equipment RMWMF-887
1.2.3.3 Access to Communications or Alarm Systems RMWMF-887
1.2.4 Hazards Prevention RMWMF-887
1.2.4.1 Preventing Hazards in Unloading RMWMF-887
1.2.4.2 Preventing Runoff or Flooding RMWMF-898
1.2.4.3 Preventing Contamination of Water Supplies RMWMF-998
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages RMWMF-999
1.2.4.5 Preventing Undue Exposure RMWMF-9109
1.2.4.6 Preventing Releases to the Atmosphere RMWMF-10109
1.3 Container Storage RMWMF-10110
1.3.1 Container Types and Labeling RMWMF-11110
1.3.2 Container Handling RMWMF-11110
1.3.2.1 Condition of Containers RMWMF-11110
1.3.2.2 Aisle Space and Storage Configuration RMWMF-11110
1.3.2.3 Compatibility of Waste with Containers RMWMF-11211
1.3.2.4 Presence of Liquids in Containers RMWMF-11211
1.4 Treatment Operations RMWMF-12211
2.0 UNIT DESCRIPTION AND INFORMATION RMWMF-13312
2.1 Security Procedures And Equipment RMWMF-13312
2.1.1 Barriers and Means to Control Entry RMWMF-13312
2.1.2 Warning Signs RMWMF-14413
2.2 Traffic Pattern, Volume, and Controls RMWMF-14413
2.2.1 Traffic Patterns RMWMF-14413
2.2.2 Traffic Volumes RMWMF-14513
2.2.3 Traffic Control Signals RMWMF-15514
2.3 Unit Location Information RMWMF-15514
2.3.1 Seismic Standard RMWMF-15514
2.3.2 Floodplain Standard RMWMF-15514

TABLE OF CONTENTS (Continued)

2.4 Topographic Maps RMWMF-151514
2.5 Groundwater Monitoring RMWMF-171716
3.0 WASTE ANALYSIS PLAN RMWMF-181817
4.0 INSPECTION PLAN RMWMF-191918
5.0 PERSONNEL TRAINING RMWMF-222221
6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE RMWMF-232322
7.0 CLOSURE PLAN RMWMF-343331
7.1 Unit Description RMWMF-343331
7.2 Estimate of Maximum Waste in Storage RMWMF-353432
7.3 Closure Conditions RMWMF-363532
7.4 Closure Activities and Schedule RMWMF-373632
7.4.1 Closure Activities RMWMF-3736
7.4.2 Closure Schedule RMWMF-3736
7.5 Sampling and Analysis Plan RMWMF-383733
7.5.1 SAP Scope RMWMF-3837
7.5.2 Sampling Methodology RMWMF-4039
7.5.2.1 Sample Locations RMWMF-4039
7.5.2.2 Sample Collection RMWMF-4241
7.5.2.3 Sampling Equipment RMWMF-4342
7.5.2.4 Sample Equipment Decontamination RMWMF-4443
7.5.2.5 Sample Identification RMWMF-4544
7.5.2.6 Sample Preservation and Holding Time RMWMF-4544
7.5.3 Demonstration of Clean Closure RMWMF-4544
7.5.4 Quality Control RMWMF-4645
7.5.5 Data Management and Reporting RMWMF-46
7.6 Decontamination and Verification Procedures RMWMF-474640
8.0 TREATMENT PLAN RMWMF-484741
8.1 Treatment Operations RMWMF-484741
8.1.1 Chemical Deactivation RMWMF-494842
8.1.25 Thermal Deactivation RMWMF-515044
8.1.36 Amalgamation RMWMF-515045
8.1.4 Stabilization RMWMF-515043
8.1.52 Macroencapsulation RMWMF-515043
8.1.63 Physical Treatment RMWMF-535243
8.21.7 Preventing Releases to the Atmosphere RMWMF-545345
8.2.1 Subpart AA RMWMF-5453
8.2.2 Subpart BB RMWMF-5453
8.2.3 Subpart CC RMWMF-54
8.23 Treatment Effectiveness RMWMF-555446
8.3.1 Chemical Deactivation RMWMF-5554
8.3.2 Thermal Deactivation RMWMF-5554
8.3.3 Amalgamation RMWMF-5655
8.3.4 Stabilization RMWMF-5655
8.3.5 Macroencapsulation RMWMF-5655
8.3.6 Physical Treatment RMWMF-5655
9.0 REFERENCES RMWMF-575747

LIST OF TABLES

Table No.	Title
1	Fire Suppression Systems at the Radioactive and Mixed Waste Management Facility
2	Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency
3	Radioactive and Mixed Waste Management Facility Emergency Equipment and Locations
4	Radioactive and Mixed Waste Management Facility Emergency Coordinator List
5	Radioactive and Mixed Waste Management Facility, Summary of Random Sampling Program
6	Radioactive and Mixed Waste Management Facility, Example Random Sample Locations

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Radioactive and Mixed Waste Management Facility (RMWMF) at Sandia National Laboratories/ New Mexico
2	Location of the Radioactive and Mixed Waste Management Facility (RMWMF) in Technical Area III
3	Radioactive and Mixed Waste Management Facility, Unit Layout
4	Radioactive and Mixed Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
5	Radioactive and Mixed Waste Management Facility, Building 6921, Resource Conservation and Recovery Act-Regulated Waste Management Areas
6	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Area
7	Radioactive and Mixed Waste Management Facility, Traffic Route and Controls
8	Radioactive and Mixed Waste Management Facility, Topographic Map
9	Radioactive and Mixed Waste Management Facility, Access Control Features
10	Radioactive and Mixed Waste Management Facility, Drainage Control Features
11	Radioactive and Mixed Waste Management Facility, Evacuation Routes
12	Radioactive and Mixed Waste Management Facility, Emergency Response and Access Information
13	Radioactive and Mixed Waste Management Facility, Building 6920, Closure ~~Random Sampling~~ Grids
14	Radioactive and Mixed Waste Management Facility, Building 6921, Closure~~Random Sampling~~ Grids
15	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Closure~~Random Sampling~~ Grids
16	Radioactive and Mixed Waste Management Facility, Modular Storage Buildings, Closure~~Random Sampling~~ Grids
17	Radioactive and Mixed Waste Management Facility, Thermal Deactivation Unit, Exterior Bottom View

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2XX, Section 2*XX.XX*
CMU	concrete masonry unit
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot/feet
ft^2	square foot/feet
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
lb/ft^2	pound(s) per square foot/feet
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	Technical Area
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO RADIOACTIVE AND MIXED WASTE MANAGEMENT FACILITY PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Radioactive and Mixed Waste Management Facility (RMWMF) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003June 14, 2000 [10-1-036-14-00], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage and treatment operations at the RMWMF. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application," hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the General Part B, and in the appendices to the General Part B meet the applicable requirements for the RMWMF that are specified in 20 NMAC 4.1.500/40 CFR 264 [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270 [6-14-0010-1-03].

Sandia/DOE also prepared the "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 75.0" (SNL/NM, 20043), hereinafter referred to as the SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this RMWMF Part B Permit Application.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Radioactive and Mixed Waste Management Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The RMWMF occupies 3.11 acres in the southeast corner of Technical Area (TA)-III. It is a fenced compound with several buildings and waste management areas (WMAs). Operations include storage of RCRA-regulated wastes in containers, repackaging wastes, and treating the wastes as needed to render them more suitable for shipment to off-site treatment and/or disposal facilities. All of the RCRA-regulated wastes listed in the General Part A may be managed at the RMWMF. Sandia/DOE currently operate the RMWMF under interim status in accordance with the terms of the most recent Part A submitted to approved by the New Mexico Environment Department (NMED) (November 29, 2004May 2002) and the most recent Part B permit request submitted to NMED (November 29, 2004April 16, 2003).

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the RMWMF waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes: containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable hazardousRCRA-regulated waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [6-14-0010-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [6-14-0010-1-03].

1.1 Designated Waste Management Areas

The location of the RMWMF at SNL/NM is shown on Figure 1. The location of the RMWMF within TA-III is shown on Figure 2. The RMWMF has six designated WMAs (Figure 3): Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence to the north, east, and west of Building 6920).

In each RMWMF WMA (except where noted), containers holding RCRA-regulated liquid wastes are stored on portable spill pallets or and pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives, solvents, and other liquids. The containers of liquids (typically 5- to 55-gallon capacity) are stored on the grating. Any liquids released from the containers drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [6-14-0010-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3) [6-14-0010-1-03].

Each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

RCRA-regulated wastes are typically stored inside one of the buildings or inside transportainers in the outdoor storage area. The containers are protected from precipitation by the buildings and transportainers, and by the slope of the asphalt pavement and concrete pads outside the buildings that direct storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(4).

The following sections provide descriptions of the ~~storage structure,~~ location~~,~~ and capacity of each WMA. Treatment practices are summarized in Section 1.4 and discussed in detail in Section 8.0 of this module.

1.1.1 Building 6920

The principal structure at the RMWMF is Building 6920. The floor plan for Building 6920 is presented on Figure 4. The WMAs in Building 6920 include waste staging, repackaging, and storage areas, and waste treatment areas. Building 6920 is a single-story concrete and steel structure with a total ~~RCRA-regulated waste management area~~WMA of approximately 5,000 square feet (ft^2) with a maximum capacity of approximately 13,420 gallons. The floors are 6-inch (in.) reinforced, sealed concrete on compacted subgrade sloped to sumps with no outlets. Walls are 8-in. load-bearing concrete masonry unit (CMU) with prefinished metal building panels in some areas. Nongrouted cells of the 8-in. CMU exterior walls are filled with vermiculite insulation. The staging area at the east end of the building has 14-foot (ft) high reinforced concrete walls. The exterior walls are 2-ft thick, interior walls are 1-ft thick, and the shared wall between the north and south parts of the building is 1.5-ft thick. Inner partitions are 8-in. reinforced CMU.

The roof consists of 24-in. deep steel joists with a 1.5 in. metal deck with 3-in. rigid insulation and a single-ply roof membrane. The roof system is a single-ply fully adhered elastomeric system, installed over rigid insulation with factory-laminated fiberglass-coated skin on both sides, and attached to the deck with metal fasteners. Ceilings are exposed and painted.

Building 6920 consists of two bays (north and south) isolated from each other by an interior airlock near~~at~~ the west end of the building. Waste treatment and repackaging is performed in both bays ~~certain portions~~ of Building 6920 (Figure 4). Treatment in the north bay includes physical treatment and macroencapsulation. Treatment in the south bay includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment. Wastes are stored in both the north and south bays, and in the airlocks at the east and west ends of the south bay.

There are six exterior personnel doors and four cargo entrances to the building, as well as separate entrances to the exterior mechanical and electrical rooms. The seven personnel doors include: three at the eastern side of the building, one on the northern side, and three at the western side. There is a cargo entrance (i.e., roll-up door) at each end of each bay. Rollup doors enclose the airlocks on the south bay.

Two enclosed areas within the north bay (shown in Figure 4) are equipped with a negative-pressure exhaust system. There are four small rooms in the south bay (Figure 4). One commercially available fume hood with a negative-pressure ventilation system is located in one of these rooms. Another local ventilation system is located in another of the rooms. The ventilation system air flow from the north bay passes through a high-efficiency particulate air (HEPA) filter train before being released to the environment through an exhaust stack. The air flow from the systems in the south bay is combined and passes through a separate HEPA filter train before being released to the environment through the exhaust stack. The filters effectively remove particulates entrained in the air flow of each system.

Both bays in Building 6920 are equipped with secondary containment. The floor in each bay slopes from the doorways toward one or more shallow (6-in.-deep) blind sumps covered with grating. Containers of liquid RCRA-regulated wastes are typically stored over or near the sumps in the south bay. In the north bay and other areas of Building 6920, containers of liquid RCRA-regulated wastes are stored on portable spill pallets or and pans covered with grating. Floors, (including the sumps), and the walls in the WMAs of Building 6920 are sealed with a chemical-resistant epoxy, which withstands degradation by chemical substances and resists wear from forklift traffic. The sumps and pallets meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.1.2 Building 6921

The Waste Assay Facility (Building 6921) is located east of Building 6920 (Figure 3). Unit personnel treat, repackage, and store wastes in the WMAs. The Building 6921 floor plan is presented on Figure 5. Building 6921 is a single-story structure constructed with interior walls of 8-in. CMU and metal studs. The roof is comprised of steel bar joists with metal decking, rigid insulation, and single-ply membrane roofing. The floors are 6-in.-thick concrete slab-on-grade. The floors in the assay area on the south side of the building are sealed with a chemical-resistant epoxy that extends up the walls for 6 in. The floors in the other two WMAs are also coated. The total WMARCRA-regulated waste management area is approximately 1,450 ft^2 with a maximum capacity of approximately 7,810 gallons.

Building 6921 (waste treatment area, shown on Figure 5) is equipped with a commercially available fume hood with a negative-pressure ventilation system. The ventilation air flow from the hood passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

Treatment in Building 6921 includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment.

1.1.3 Buildings 6925 and 6926

Buildings 6925 and 6926 are used for storage and some treatment of RCRA-regulated waste at the RMWMF. Treatment typically consists of macroencapsulation. The floor plans for Buildings 6925 and 6926 are presented on Figure 6. Building 6925 has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. Building 6926 also has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. Each is a prefabricated steel building erected on a concrete slab floor and foundation. The concrete floors are covered with chemical-resistant epoxy coating. Steel rollup doors are located on the southern wall of each building, on the eastern wall of Building 6925, and on the western wall of Building 6926. Personnel doors are located on the east, south, and west sides of each building.

1.1.4 Modular Storage Buildings (TP150 and TP153)

There are two modular storage buildings located west of Building 6920 that are used for storage of RCRA-regulated reactive and ignitable/flammable wastes (Figure 3).

The exterior dimensions of each modular storage building are 23-ft long, 9-ft wide, and 8.6-ft high. The structures are constructed for a snow loading of 40 pounds per square foot (lb/ft^2), Uniform Building Code seismic Zone 3, and a wind loading with exposure C open area at 110 miles per hour. The walls and roof of each structure are rated for a 2-hour fire. Each building has two 5-ft wide doors, and each door has a single-point locking mechanism with inside safety release. Each building is vented. The inside walls and ceiling of each building are covered with an epoxy coating which is resistant to reactive wastes.

Each modular storage building has a 5.5-inch-deep integral spill containment reservoir under the entire building; the capacity is 650 gallons. The secondary containment capacity is 10% of the stored volume of the contents of the largest container; thus, the storage capacity based on secondary containment is 6500 gallons. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4). The reservoirs are constructed of 10-gauge American Society for Testing and Materials A36 steel and are coated with a chemical-resistant epoxy. The building floors are epoxy-coated steel grating. Each building rests on structural supports that elevate it and allow visual checks ~~inspections~~ of the underside of the spill containment reservoir if there is evidence of deterioration on the interior surfaces. The maximum storage capacity at each building is not based on secondary containment. It is approximately 1,100 gallons.

1.1.5 Outdoor Waste Storage Area

The outdoor waste storage area consists of the asphalt paved areas to the north, east, and west of Building 6920 and within the RMWMF fence (Figure 3). The outdoor waste storage area may be used for containerized ~~RCRA-regulated waste~~ storage of RCRA-regulated wastes. It has an area of approximately 48,500 ft^2 with a total storage capacity of approximately 19,800 gallons. The area is curbed and paved with berms on the east end of the site, and slopes toward the water retention pond. In the event of any releases of liquids in the outdoor storage area, the curbing and berms and the retention pond would capture released liquids, including precipitation so that any contaminants would not exit the site.

Containers of RCRA-regulated wastes are typically stored inside enclosed steel transportainers, which are 10- to 40-cubic-yard transportable containers. A transportainer typically has doors at one end and can be lifted onto a large flatbed truck for transportation.

1.2 Unit Operations

The RMWMF WMAs are used to store ~~and/or treat~~ any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the ~~SNL/NM~~ General Part A. Many of the wastes may also be treated in the RMWMF WMAs; specific treatment operations are discussed in Sections 1.4 and 8.0 of this Module.

Information regarding operations requiring a permit at ~~of~~ all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the ~~SNL/NM~~ General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14 [b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Liquid wastes released from individual containers will accumulate in the spill pallets. Unit personnel begin taking action to evaluate and remove accumulated liquids in the spill pallets and sumps (in Building 6920) upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[d]; and 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the RMWMF. Sources of ignition that may be present at the RMWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the ~~SNL/NM~~ General Part B. Additional RMWMF-specific features, potential ignition and reaction sources, precautions, and practices include:

- The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. They are equipped with a dry chemical fire suppression system to assure that water-reactive wastes will not be exposed to water during fire emergencies.

- Ignitable and reactive wastes are segregated from other wastes and typically stored in the modular storage buildings. The modular storage buildings have exterior signs indicating the presence of ignitable/flammable and reactive wastes.

- Ignitable and reactive wastes may also be stored in Building 6925, and may be kept temporarily in Buildings 6920, 6921, and 6926 for treatment, packaging, and staging for shipment. Individual containers are labeled as described in Section 1.2.1 of the General Part B, and they are kept apart from other wastes. Unit personnel typically place a portable sign near the wastes, use prominent labels, or use another method to assist in identifying them as ignitable and/or reactive.

- Water-reactive wastes are not routinely stored in areas equipped with water sprinklers for fire suppression. They may be managed temporarily in Buildings 6920, 6921, 6925, and 6926 for treatment, packaging, and staging for shipment. If water-reactive wastes are present, they will be isolated from water contact as described in Section 1.1.2.1 of the General Part B, and their location will be identified through the use of signs, labels, or some other method.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas; each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Forklifts are not used for waste movement near treatment operations involving ignitable or reactive wastes in Building 6920 to minimize potential sources of ignition while containers are or may be open.

- Wastes are mixed together on a very limited basis during the treatment and repackaging operations at the Unit. Ignitable and reactive wastes are treated or mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994] or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions. Treatment operations are described in Section 8.0 of this module.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.5.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the RMWMF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

General information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrants at the RMWMF are shown in Figure 12.

The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. All buildings at the RMWMF are equipped with automatic fire suppression systems, summarized below:

Table 1
Fire Suppression Systems at the
Radioactive and Mixed Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6920 (general area)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (small rooms)	13	Extra/Group 1	Automatic sprinkler, wet pipe	GB/FS
HEPA filters	15	N/A	Deluge, dry/open	Detection
6921	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6925	13	Storage	Automatic sprinkler, dry pipe	GB/FS
6926	13	Storage	Automatic sprinkler, dry pipe	GB/FS
TP150	17	N/A	Dry chemical	
TP153	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb (GB) or fusible solder (FS) type, typically designed to open at temperatures of 155ºF or higher.

Information on other required equipment located at the RMWMF is provided in Section 6.0 and Table 2 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the RMWMF is provided in Appendix C of the ~~SNL/NM~~ General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the RMWMF is provided in Section 1.1.3.2 of the ~~SNL/NM~~ General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the RMWMF to prevent hazards. Additional information applicable to the RMWMF and all other Units at SNL/NM is included in Section 1.1.4 of the ~~SNL/NM~~ General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

RMWMF personnel employ the practices described in Section 1.1.4.1 of the ~~SNL/NM~~ General Part B to prevent hazards in unloading. Loading and unloading activities take place on the paved areas, typically immediately outside the buildings. The surface is sloped gently toward shallow drainage ditches, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Drums and other containers of RCRA-regulated waste are typically strapped together on a pallet before being loaded onto vehicles. Containers are typically transported within the Unit with forklifts, drum dollies, or pallet jacks.

Unit personnel typically use the loading dock for loading and unloading wastes from trucks. The ramp on the west side of Building 6926 slopes gently up to the dock, allowing forklift operators to drive onto trailers of trucks parked at the dock. The dock and ramp are in good condition and are covered with a corrugated metal roof to provide protection from weather.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The area around the Unit slopes gently toward the west. Sheet-flow run-on of surface water from surrounding areas outside the Unit is prevented from entering the WMAs by several features. The elevated gravel road located outside the east fence of the Unit serves to divert

water flowing from areas farther to the east. An 8-in. curb at the east edge of the asphalt pavement and an asphalt-lined drainage swale along the eastern edge of the Unit (inside the fence) divert run-on from the gravel road toward the south away from the Unit. On the south and west sides, the Unit is higher than the surrounding land. On the north side, the Unit and a narrow ledge of land outside the fence are higher than the surrounding land. Thus, run-on from all directions is prevented from entering the Unit.

The asphalt-paved areas within the Unit are surrounded by an 8-inch curb, further preventing run-on and run-off. The outside storage area slopes toward the south and west. The concrete pads outside the doors and the asphalt pavement surrounding Buildings 6920, 6921, 6925, and 6926 all slope away from the doors and toward shallow drainage channels that run between buildings 6920, 6925, and 6926. The channels lead to the synthetic-lined water retention pond at the southwest corner of the Unit, providing controlled drainage of storm water from roof downspouts and the paved areas in the RMWMF into the water retention pond. During normal operations, the water retention pond collects only storm water. The water retention pond does not provide secondary containment for RCRA-regulated waste.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that ~~RCRA-regulated waste~~ management of RCRA-regulated wastes ~~activities~~ at the RMWMF will affect water supplies, as described in Section 1.1.4.3 of the ~~SNL/NM~~ General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. RCRA-regulated waste handling~~management~~ activities in ~~at~~ the RMWMF WMAs ~~will be suspended in response to~~ that are affected by equipment failures or~~f~~ power outages will be suspended in response to such outages. ~~affecting those WMAs.~~

The RMWMF is equipped with an auxiliary diesel generator that can provide backup power to Building 6920. The generator maintains containment ventilation, alarm systems, heating equipment, and controls necessary to keep water in pipes from freezing should the main power supply fail.

Equipment and/or power failures at Buildings 6920, 6921, 6925, 6926; the outdoor waste storage area; or the two modular storage buildings will not result in a loss of containment of RCRA-regulated waste~~s~~ ~~containment~~.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

RMWMF personnel employ the practices described in Section 1.1.4.5 of the ~~SNL/NM~~ General Part B to prevent undue exposure. In addition, the ~~a~~ enclosed work areas and negative-pressure ventilation system~~s~~ in the fume hoods in Building~~s~~ 6920 and 6921 ~~is~~ provide~~d~~ additional protection for Unit personnel performing treatment and repackaging operations.~~for the~~

RCRA-regulated waste storage, staging/packaging, and treatment areas. The ventilation air flow from these areas passes through high-efficiency particulate air filters before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow. Anticipated emissions from treatment operations are discussed in Section 8.2.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

RMWMF personnel employ the practices described in Section 1.1.4.6 of the SNL/NM General Part B to prevent releases to the atmosphere during storage.

Subpart AA

RMWMF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [6-14-0010-1-03]. Equipment used in such service at the RMWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-0010-1-03]. The equipment list will be maintained in the RMWMF records. Equipment use will also be noted in the records.

Subpart CC

Unit personnel follow the practices described in Section 1.1.4.6 of the SNL/NM General Part B and maintain compliance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the Unit.

Section B.5.3 in Appendix B of the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

1.3 Container Storage (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264, Subpart I)

Container storage practices applicable to the RMWMF are presented in the following sections.

1.3.1 Container Types and Labeling

RMWMF personnel use the containers types and labeling practices described in Section 1.2.1 of the ~~SNL/NM~~ General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

RMWMF personnel employ the container handling practices described in Section 1.2.2 of the ~~SNL/NM~~ General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the RMWMF is maintained as indicated in Section 1.2.2.1 of the ~~SNL/NM~~ General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

RMWMF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the ~~SNL/NM~~ General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

In Buildings 6920, 6921, 6925, and 6926, drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than three pallets high. Box-shaped containers may be stacked three high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

Containers of liquids are not stacked when stored in the modular buildings.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

RMWMF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the ~~SNL/NM~~ General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

RMWMF personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the ~~SNL/NM~~ General Part B before storing containers in areas that are not equipped with secondary containment.

1.4 Treatment Operations

RCRA-regulated wastes are treated at the RMWMF by the following methods:

- Chemical deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Thermal deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Stabilization (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Amalgamation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Macroencapsulation (performed in Buildings 6920, 6921, or 6925)
- Physical treatment (performed in either bay in Building 6920 and in Building 6921).

The treatment practices applicable to the RMWMF are discussed in detailpresented in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [6-14-0010-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and
  20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-0010-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of SNL/NM General Part B.

2.1 Security Procedures And Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the RMWMF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The RMWMF is completely surrounded by an 8-ft-high chain-link and barbed-wire fence. A single personnel entrance door adjacent to the main vehicle entrance gate is located on the south side of the RMWMF. Another personnel entrance door and vehicle gate are located on the north side of the RMWMF. The gates and doors in the RMWMF fence are maintained in closed and locked positions. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the RMWMF gates during non-operational hours.

During work hours, RMWMF employees may enter the area through the locked personnel doors by entering the appropriate code into a keypad on the RMWMF fence near each personnel

door. Emergency and service vehicles may enter the RMWMF through the electronically-controlled main vehicle gate if RMWMF personnel enter the appropriate code into a keypad inside the office trailer or on the keypads located near the personnel doors on the RMWMF fence. Signs instruct personnel and visitors to report to the office trailer for site entry privileges and instructions. Resident personnel have Sandia-issued badges. Individuals who do not have a Sandia-issued badge are escorted. These procedures limit access to the RMWMF RCRA-regulated WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [6-14-0010-1-03].

The RMWMF is located inside TA-III (Figures 1 and 2). TA-III is surrounded by a barbed wire fence with designated access gates. TA-III access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-III.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fence surrounding the RMWMF and the entrance to the RMWMF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the RMWMF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the SNL/NM General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated waste to the RMWMF include Wyoming Boulevard, Hardin Boulevard (formerly “O” Street), and Pennsylvania Avenue. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved road to TA-III turns southwestward off of Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Boulevard entrance gate as shown on Figure A-4 in Appendix A of the SNL/NM General Part B.

Within TA-III, traffic access to and from the RMWMF is along 2-lane asphalt-paved roads shown on Figure A-6 in Appendix A of the SNL/NM General Part B. Vehicles entering the RMWMF travel on an asphalt-paved 2-lane drive from the road through the south vehicle gate, as shown on Figure 7. Within the RMWMF, waste is transported on asphalt-paved surfaces.

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard and Hardin Boulevard are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Traffic volumes within TA-III are light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Approximately 10 to 30 vehicles per week travel into and out of the RMWMF. These include flatbed trucks and trailers carrying supplies, RCRA-regulated wastes from initial generators, and wastes to off-site TSDFs.

2.2.3 Traffic Control Signals

Vehicles must stop at a gate prior to entering or leaving TA-III. Only authorized personnel are permitted into TA-III. Speed limit signs (i.e., "30 mph Unless Otherwise Posted") are located at several locations in TA-III.

There are no traffic control signals or signs within the RMWMF fenced area. A speed limit sign (i.e., "Max. Speed 5 mph On Site") is posted on the fence adjacent to the RMWMF entrance gate (Figure 7). Vehicle presence within the RMWMF fenced area is limited to official and waste transport vehicles. Therefore, signals or signs are not necessary to control traffic within the RMWMF fenced area.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i] and [ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the RMWMF are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the ~~SNL/NM~~ General Part B ~~[SNL/NM, 2003b]~~).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the RMWMF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the ~~SNL/NM~~ General Part B ~~[SNL/NM, 2003b]~~).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [~~6-14-00~~10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [~~6-14-00~~10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the ~~SNL/NM~~ General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [~~6-14-00~~10-1-03]).

- Surface waters, including intermittent streams, near the RMWMF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [6-14-0010-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [6-14-0010-1-03]). The area surrounding the RMWMF is occupied by test areas and Sandia-controlled operations (industrial land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [6-14-0010-1-03]).

- Legal boundaries of SNL/NM (including the RMWMF) are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [6-14-0010-1-03]).

- Access control features at the RMWMF (e.g., fences, gates) are shown on Figure 8 and 9 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [6-14-0010-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the RMWMF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [6-14-0010-1-03]).

- The location of the RMWMF and associated WMA structures, loading and unloading areas, roads, and sanitary sewers are shown on Figures 8 and 9 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [6-14-0010-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 10 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [6-14-0010-1-03]).

- Locations of the RMWMF and the RMWMF WMAs are shown on Figures 3 and 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [6-14-0010-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the RMWMF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03], SNL/NM has submitted the maps to the NMED at these scales and contour intervals due to the size of the RMWMF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of this comprehensive Part B permit request. The RMWMF is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor is the RMWMF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

Waste analysis requirements applicable to all Units, including the RMWMF, are addressed in Appendix B of the ~~SNL/NM~~ General Part B as required by 20 NMAC 4.1.900/40 CFR 270.14[b][2], 20 NMAC 4.1.500/40 CFR 264.13, "General Waste Analysis."

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [6-14-0010-1-03] require that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardousRCRA-regulated waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to RCRA-regulated waste management of RCRA-regulated waste activities to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. RMWMF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 2, with the inspection criteria and frequency. The items listed in the table are inspected in each RMWMF WMA.

Automatic fire suppression systems are included in Table 2. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on in accordance with the requirements of NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" (NFPA,2002), as described in Section 1.1.3.2 of the General Part B.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained at the RMWMF. Inspection records for previous calendar years are maintained at the RMWMF or the SNL/NM Records Center.

Table 2
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 3 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash / safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building / storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Overhead crane	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Secondary containment (Buildings 6920, TP150, TP153)	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.

Table 2 (Concluded)
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Treatment areas	Good condition, clean, uncluttered, no spills	Daily when and where wastes are handled. Monthly otherwise.
Fume hoods	Good condition, clean, no deterioration	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no ~~releases or~~ deterioration)~~; fume hood, drum, and room ventilation flows within established parameters~~	Prior to treatment (consumable items) or d~~D~~aily when and where wastes are treated ~~handled~~(tools). Monthly otherwise.
Thermal deactivation equipment	Good condition (i.e., no releases or deterioration)	Daily when used to treat wastes. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous~~RCRA-regulated~~ waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
~~STORED~~ CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 or 3 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training Requirements for Unit personnel are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][12] and 20 NMAC 4.1.500/40 CFR 264.16 [6-14-0010-1-03], "Personnel Training."

The Sandia/DOE training program is designed and implemented to prepare personnel to safely operate and maintain those areas used for managing RCRA-regulated wastes. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the RMWMF.

RMWMF personnel receive training in accordance with the "Site-Wide Personnel Training Plan," provided as Appendix D of the SNL/NM General Part B. All job descriptions identified in Appendix D, Table D-2 of the SNL/NM General Part B are applicable at the RMWMF.
Training records for RMWMF personnel are maintained at the RMWMF.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The "Site-Wide Contingency Plan" is included in as Appendix E of the SNL/NM General Part B. Supplemental RMWMF-specific information is included in this section, in Figures 11 and 12, and in Tables 3 and 4 of this module. Current copies of the sSite-wide cContingency pPlan (Appendix E of the SNL/NM General Part B) and this supplemental information are maintained at the RMWMF and at the SNL/NM Emergency Operations Center.

The RMWMF is located in the southeastern corner of TA-III at SNL/NM. It is used for treatment and storage of RCRA–regulated wastes. The RCRA-regulated WMAs at the RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence and north, east, and west of Building 6920). All are surrounded by a fence.

- Building 6920 is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 square feet of space used for wasteRCRA-regulated storage and treatment activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage. The building also includes a control room, restrooms, and electrical and mechanical rooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored over a sump in the south bay or on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, thermal deactivation, or physical treatment. Up to 13,420 gallons of waste may be stored in this building.

- Building 6921 is a single-story CMU building with approximately 1450 square feet of space used for wasteRCRA-regulated storage and treatment activities. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, or physical treatment. Up to 7,810 gallons of waste may be stored in this building.

- Buildings 6925 and 6926 are each 4000-square-foot prefabricated steel buildings on concrete foundations. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may also be treated by chemical deactivation, macroencapsulation, stabilization, and physical treatment. Up to 83,160 gallons of waste may be stored in each building.

- Two modular, prefabricated safety storage structures located west of Building 6920 are used for the storage of reactive and ignitable wastes. Each structure is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. Each structure may contain up to 1,100 gallons of waste.

- The outdoor waste storage area consists of 48,500 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence that may be used for storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers. Containers with liquids are stored on portable spill containment pallets inside the transportainers. Up to 19, 800 gallons of wastes may be stored in these areas.

RCRA-regulated wastes bearing the U.S. EPA Hazardous Waste Numbers listed in the ~~SNL/NM~~ General Part A may be stored and/or treated at the RMWMF WMAs.~~, which may be used for RCRA-regulated waste storage and treatment.~~

Figure 11 presents evacuation routes for the RMWMF. Figure 12 presents emergency response and access information for the RMWMF. Table 3 lists the emergency equipment typically available at the RMWMF. Table 4 lists the emergency coordinators for the RMWMF.

Table 3
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Stations/ Showers	• On north wall in south bay • Near office in north bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In hallway between north and south bays
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In hallway between north and south bays
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
	Audible fire alarms	Located throughout the building

Table 3 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Control room, south and north bays
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • By personnel door in southwest corner of south bay • In hallway between north and south bays • By personnel door in west mechanical room
	Portable (D)	In northwest corner of north bay
	Portable (A-B-C)(D)	By personnel door on north wall of north bay
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 12

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 3 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	On north wall of assay area
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By north wall of assay area
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By north wall of assay area
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
	Audible fire alarms	Located throughout the building

Table 3 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Office and lab areas
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
Fire Extinguishers	Portable (A-B-C)	• By north personnel door in electrical/mechanical room • In hallway between assay area and north office area • By northwest personnel door of assay area • By east personnel door in southeast counting room
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 12

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 3 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6925

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By personnel door near center of south wall
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By personnel door near center of south wall
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By personnel door near center of south wall
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
	Audible fire alarms	Located on east and west wall
External Communication System	Telephone	By personnel door in southwest corner of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building
	Portable (A-B-C)(D)	By personnel door near center of south wall
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 12

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 3 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6926

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	In southeast area of building
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In southeast area of building
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In southeast area of building
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
	Audible fire alarms	Located on east wall and west wall
External Communication System	Telephone	In southeast area of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door on west wall of building
	Portable (A-B-C)(D)	By personnel door on south wall of building
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 12

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 3 (Concluded)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Modular Storage Buildings

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Buildings 6920 and 6926
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	Buildings 6920 and 6926
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
	Audible fire alarms	Buildings 6920, 6921, 6925, and 6926
External Communication System	Telephones	Buildings 6920 and 6926
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
Fire Suppression	Automatic dry chemical system	Coverage throughout the building

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 4
Radioactive and Mixed Waste Management Facility,
Emergency Coordinator List

April 16, 2003November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Jeff Jarry Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-3080 (office) (505) 561-1138 (pager)	(505) 452-3337
First Alternate	Mike Spoerner Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2813 (office) (505) 540-5296 (pager)	(505) 828-3441
Second Alternate	Phil Zelle Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2486 (office) (505) 540-7437 (pager)	(505) 292-5097
Third Alternate	Mary Ann Krauss Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 845-9997 (office) (505) 540-5228 (pager)	(505) 299-0793
Fourth Alternate	Leroy Duran Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-1488 (office) (505) 530-4105 (pager)	(505) 281-4183

One or more of these personnel are routinely available during operating hours (7:00 am to 5:30 pm, Monday through Thursday).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][13] and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I [6-14-0010-1-03]. General closure information applicable to all RCRA-regulated Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the SNL/NM General Part B. The site-wide Closure pPlan includes a description of the SNL/NM facility,; waste descriptions,; closure performance standards,; general closure methods,; a sampling and analysis plan (SAP), a general closure schedule,; procedures for amendment of the Closure pPlan,; closure certification and reportletter,; and survey plat, and post-closure requirements. Unit-specific information for closure of the RMWMF is included in this section.

7.1 Unit Description

Sandia/DOE use tThe Radioactive and Mixed Waste Management Facility (RMWMF) is located in the southeastern corner of TA-III at SNL/NM. It is used for treatment and storage of RCRA-regulated waste. The RMWMF is located in the southeastern corner of TA-III at SNL/NM. The RCRA-regulatedwaste management areas (WMAs) at the RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the an outdoor waste storage area (i.e., paved areas within the RMWMF fence and north, east, and west of Building 6920).

- Building 6920 (Figure 13) is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 square feet ft^2 of space used for RCRA-regulated treatment and container storage and treatment activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage; one of these rooms is equipped with a fume hood with a local negative-pressure ventilation system. Another room is equipped with a portable local ventilation system. Two areas of the north bay are also equipped with local negative-pressure ventilation systems. The air flow from the ventilation systems passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow. The floors of the north and south bays are coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor. The south bay includes an epoxy coated sump that provides secondary containment for liquids stored in the area. The building also includes a control room, restrooms, and electrical and mechanical rooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored over a sump in the south bay or on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. Contents may also be treated by chemical deactivation, macroencapsulation, stabilization, thermal deactivation, or mechanical processing.

- Building 6921 (Figure 14) is a single-story CMU building with approximately 1,450 ft^2square feet of space used for RCRA-regulated treatment and container storage and treatment activities in three areas. The concrete floors are covered with a chemical-resistant epoxy coating. One room contains a fume hood with a local negative-pressure ventilation system. The exhaust from the system passes through a HEPA filter train

before being released to the environment through an exhaust stack. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. Contents may also be treated by chemical deactivation, macroencapsulation, or stabilization.

- Buildings 6925 and 6926 (Figure 15) are each 4,000-ft^2square foot prefabricated steel buildings on concrete foundations. The buildings are used for container storage of RCRA-regulated wastes, and Building 6925 is also used for treatment. The concrete floors are covered with a chemical-resistant epoxy coating. The buildings are used for storage of wastes in containers.Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities.

- Two modular, prefabricated safety storage structures located west of Building 6920 are used for the container storage of RCRA-regulated reactive and ignitable wastes. Each structure (Figure 16) is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. The inside surfaces are covered with a chemical-resistant epoxy coating.

- The outdoor waste storage area consists of 48,500 ft^2square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence. This area that may be used for container storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers at this WMA. Containers with liquids are stored on portable spill containment pallets inside the transportainers.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum total volumeinventory of RCRA-regulated waste in treatment and/or storage and/or treatment at any time at the RMWMF is estimated at approximately 209,550 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volumeinventory is broken down as follows:

- Building 6920: 13,420 gallons
- Building 6921: 7,810 gallons
- Building 6925: 83,160 gallons
- Building 6926: 83,160 gallons
- Modular storage building TP150: 1,100 gallons
- Modular storage building TP153: 1,100 gallons
- Outdoor waste storage areas: 19,800 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan in Appendix F of the SNL/NM General Part B, partial closure activities specified in this plan assume the following conditions were met during the operational life of the RMWMF:

- RCRA-regulated Wwaste -handling and treatment activities that involvededing the opening of waste containers of RCRA-regulated waste were confined to the RMWMF RCRA-regulated WMAs. If contamination occurred, it would have been confined to those areas.; and

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during treatment activities, they would only be present in the systems up to the first filter.

- The WMAs are physically separate; therefore, each WMA is considered independently of the other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- Containers of wastes were not routinely stored on the asphalt in the outdoor storage area. Containers were occasionally staged there temporarily if needed to accommodate operations involving large numbers of containers (e.g., staging for shipments). Containers of liquids were stored on spill pallets and were not stored directly on the asphalt. Containers of waste were not opened in the area, therefore, RCRCA-regulated wastes or hazardous waste constituents are not present on the asphalt unless there is knowledge or evidence of a release.

- Containers of waste were stored in steel transportainers in the outdoor storage area. Containers of liquids were not routinely stored within the transportainers; those that were present were stored on spill pallets. Containers of waste were not opened within the transportainers; therefore, RCRA-regulated wastes or hazardous waste constituents are not present in any transportainer unless there has been a release in that transportainer.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the WMAs where wastes were managed.

- The interior walls and floors of the WMAs in each building were maintained to retain their integrity by following established maintenance and inspection procedures, and breaches of protective coatings did not occur, and a small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the RMWMF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- Items of equipment within the treatment areas will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that are most likely to be removed include local exhaust systems (up to the first filter), filters, and portable equipment. Items that are most likely to be decontaminated include the interiors of fume hoods.

- Transportainers used for storage in the outdoor waste storage area will be visually examined for evidence of releases. Additional closure activity will be limited to those where RCRA-regulated wastes or hazardous waste constituents could be present due to visual evidence of releases or knowledge of prior releases. The transportainers will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The modular storage buildings (TP150 and TP153) will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The floors of each treatment and/or storage WMA will be decontaminated by sweeping and washing as described in Section F.5, except as noted in this section.

- The asphalt in the outdoor waste storage area will be visually examined for evidence of deterioration and releases. Decontamination or removal of the asphalt will be limited to areas where there is visual evidence or documentation indicating a release of RCRA-regulated wastes or hazardous waste constituents has occurred.

7.4.2 Closure Schedule

Section F.7 of the site-wide cClosure pPlan in Appendix F provides a timeline for closure activities applicable to all permittedRCRA-regulated Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the RMWMF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the RMWMF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide cClosure pPlan in Appendix F presents general sample collection equipment and techniques applicable to all RCRA-regulated Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the RMWMF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure standardscriteria, QA and quality control /[QC] procedures, etc.) regarding RCRA closure of the RMWMF.

7.5.1 Sampling and Analysis ScopeProject Description

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and, where appropriate, secondary containment surfaces and fume hood interiors walls of the six of the WMAs at the RMWMF (Buildings 6920, 6921, 6925, and 6926; and the two modular storage buildings); and similar samples from the transportainers at the outdoor waste storage area). Initial wipeAll of the samples will be taken analyzed to verify that stored RCRA-regulated wastes have not contaminated the WMAs. The wipe samples will be analyzed fordetermine concentrations of a set of indicator compounds parameters selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator compounds parameters and the applicable criteria for clean closure are identified in Tables 5 and 6, and the rationale for their selection is presented in Section 7.5.3. If initial sampling confirms the absence of contamination in the structures, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or those areas will be decontaminated and re-sampled to verify they have been cleaned, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.

This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describes the indicator compound levels that will be used to verify that clean closure has been achieved.

Table 5
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[1]	Standards for Comparison[2]
Floor sweepings	Single grab from collected material at each WMA, except for fume hoods (representative of material removed from entire floor surface)	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	5.6 ppm 130 ppm <1 ppm 17.3 ppm 21.4 ppm <0.25 ppm <1 ppm <1 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Same as above	N/A

[1] These metals have been selected as indicator parameters to demonstrate clean closure at the RMWMF due to their typical presence in the wastes stored at the Unit.

[2] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 6
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[1]	Indicator Parameters[2]	Closure Criteria[3]
Building 6920	$S_1 – S_7$	4	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	S_8	4[4]	Same as above	Same as above
	S_9 (Fume Hood)	4[5]	Same as above	Evaluate with respect to concentrations in pre-wash water
	$N_1 – N_7$	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6921	WA	4	Same as above	Same as above
	WT_1, WT_2	4	Same as above	Same as above
	Fume Hood	4[5]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6925	A	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water

	B	4	Same as above	Same as above
Building 6926	A	4	Same as above	Same as above
	B	4	Same as above	Same as above
Modular Storage Buildings	A	4[4]	Same as above	Same as above
Outdoor Storage Area	Each Transportainer	4	Same as above	Same as above

[1] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[2] These metals have been selected as indicator parameters to demonstrate clean closure at the RMWMF due to their typical presence in the wastes stored at the Unit.

[3] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: (1) the joint guidance developed by the National Association of Attorneys General (NAAG) and the NAAG/DOE Working Group, *Sharing of Radionuclide Information with States*, dated September 1998, and (2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico for Environmental Oversight and Monitoring, dated November 29, 2000.

[4] Secondary containment surfaces (bottoms and sides) will be washed up to the secondary containment level.

[5] The interior surfaces of fume hoods will be washed.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA within a building, except for fume hoods, and of each transportainer at the outdoor storage area will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

Two samples of used wash water and two samples of used decontamination rinse water will be collected from each area indicated in Table 6. Used wash water will be contained in the bays, in temporary berms, or other containment devices; sampled; and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.~~Selection of sample locations on the wall and floor surfaces in the RMWMF WMAs will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor and wall surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at identified locations of stains and discolorations on surfaces, if any are identified).~~

~~Random sample locations have been identified in this SAP, whereas additional biased sample locations will be identified at the time of closure. Table 5 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, floor and wall surfaces in each of the RMWMF WMAs were stratified into five general sample areas (floor, north wall, south wall, east wall, and west wall), with the exception of the outdoor waste storage area, as there are no walls to be sampled. Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

~~RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each floor and wall grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 6 provides an example of how these random sample coordinates are located, and Figures 13 through 16 show the sampling grids for each RMWMF WMA.~~

~~The entire floor surfaces will be gridded for random sampling, and the wall grids will be limited to a height of 5 feet above the floor surface, which includes the areas most likely to have been affected by waste management activities in the Unit.~~

~~Table 5~~
~~Radioactive and Mixed Waste Management Facility~~
~~Summary of Random Sampling Program~~

~~WMA[a]~~	~~Grids[b]~~	~~Wall Samples per Grid~~	~~Floor Samples per Grid~~	~~Indicator Parameters[c]~~	~~Closure Standard[d] ($\mu g/m^2$)~~
~~Building 6920~~	~~S_1—S_7~~	~~4~~	~~1~~	~~Arsenic~~ ~~Barium~~ ~~Cadmium~~ ~~Chromium~~ ~~Lead~~ ~~Mercury~~ ~~Selenium~~ ~~Silver~~	~~387~~ ~~109,752~~ ~~1,557~~ ~~4,704~~ ~~270~~ ~~157~~ ~~7,839~~ ~~7,839~~
	~~S_8~~	~~0~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~N_1—N_7~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6921~~	~~WA~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~WT_1, WT_2~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6925~~	~~A~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~B~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Building 6926~~	~~A~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
	~~B~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Modular Storage Bldgs.~~	~~A~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~

[a] RCRA-regulated wastes were not routinely stored in the outdoor waste storage area, and when present, were typically stored on portable spill containment pallets inside the transportainers. The outdoor waste storage area will undergo biased sampling if there is evidence of a release.

[b] Refer to Figures 13 – 16 for locations of sample grids.

[c] RCRA toxicity characteristic metals have been selected as indicator constituents to demonstrate clean closure at the RMWMF; see section 7.5.3 for additional information.

[d] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.

Table 6
Radioactive and Mixed Waste Management Facility
Example Random Sample Locations

WMA	Grid	Xmin, Xmax (inches)	Ymin, Ymax (inches)	Random X-coordinate (inches)[a]	Random Y-coordinate (inches)[a]
Building 6925	A (Floor)	1 – 600	1 – 480	62	45
	A (S. wall)	1 – 60	1 – 600	9	545
	A (N. wall)	1 – 60	1 – 600	26	460
	A (W. wall)[b]	1 – 60	1 – 480	53	154

[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.
[b] As shown on Figure 15, there is no east wall in Building 6925 Grid A.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA, as discussed above, prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 5.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 5 and 6, as appropriate.The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.

Dry wipe sampling is proposed for this project, and will be conducted in accordance with the following procedures:

- Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 6. Using these coordinates as the center point, delineate a 1 square foot area around this point.

- Don clean, dry, lightweight cotton gloves.

- Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.

- Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.

This process will be repeated until all floor and wall grids have been wipe sampled.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.The following equipment will be required for the wipe sampling to be conducted at the RMWMF:

- Lightweight, white, cotton gloves (clean-room type)

- Stainless steel forceps or tweezers

- Filter paper wipes (Whatman® No. 40, 4.25 cm diameter, or equivalent)

- A 1 square foot template made from inert material (e.g., Teflon, etc.)

- Precleaned 4 oz. or 8 oz. wide-mouth glass jars with screw-top lids

- Insulated shipping cooler with frozen, gel-type cooling material and cushioning packaging

- Sample collection and custody forms, sample numbers, labels, chain of custody forms, etc.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will is not be required for the wipe sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5Sample Documentation and Custody

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Preservation method
- Analysis required

A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.

7.5.2.67.5.2.5 *Sample Identification*

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, fume hoodwest wall, etc.), the grid identifiernumber, the sample type (e.g., soil, rinse waterrandom or bias), and any additional information that may be necessary. As an example, the sample numbered F-6925-B-FLEW-RINSERAND-01 would indicate the random filtered rinse water sample taken from the water used to rinse the floor of Grid B on the east wall ofin Building 6925.

7.5.2.77.5.2.6 *Sample Preservation and Holding Time*

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., . For example, the recommended maximum holding time for metals analysis is 6 months180 days from sample collection until extraction).

7.5.2.8Waste Management

Minimal quantities of waste will be generated through the wipe sampling procedures at the RMWMF, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the RMWMF will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

7.5.3 Demonstration of Clean Closure

Hazardous wasteRCRA toxicity characteristic metals have been selected for use as indicator parameters to demonstrate clean closure at the RMWMF, as these constituents are present in many of the wastes were commonly treated or stored in the Unit. Other wastes treated or stored in the RMWMF typically were are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005 waste codes). Wipe sSampling floor sweepings (soil) or decontamination wash and rinse watersof concrete and metal surfaces is of limited valuenot a valid method for determining the presence of D001, D002, or D003 waste residuals. In addition, and given their volatility, of F001-F005 constituents, they would not likely be present on the floor, secondary containment, or interior fume hoodbuilding surfaces even if they these constituents had been released in the past. If residual contamination is present on these floor and wall surfaces of the RMWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, wipe samples will be analyzed for RCRA hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B/7471A, or an equivalent method.

Results from initial wipe sampling of the floor and walls in the RMWMF will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If

wipe sampling results for the selected indicator parameters are lower than the associated cleanup level, as presented in Table 5, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria.Analytical results from floor sweeping (soil) samples will be compared to background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the wipe sample resultsconcentrations of indicator parameters are substantially elevatedgreater than the cleanup level, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.13 of the site-wide cClosure pPlan.

7.5.4 Quality Control

Quality control (QC) for wipe sampling and analysis at the RMWMF will be implemented as described in Section F.6 of the site-wide closure plan. to ensure that the data collected provides useful information to document clean closure of the Unit. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.

The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:

- Blank Spike Analysis — The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameters (RCRA metals) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.

- Method Blank — An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures. Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.Initial data reduction and validation will be done by the laboratory contracted to

~~analyze the wipe samples. The laboratory will report the data in accordance with their internal quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.~~

~~Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.~~

7.6 Decontamination and Verification Procedures

Section F.5.2~~3~~ of the site-wide c~~C~~losure p~~P~~lan ~~in Appendix F~~ presents general decontamination and verification procedures applicable to all ~~RCRA-regulated waste management~~ Units at the SNL/NM facility. Prior to closure, this Unit-specific ~~Closure P~~plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific ~~Closure P~~plan will be submitted to NMED for approval prior to initiation of closure activities at the RMWMF.

8.0 TREATMENT PLAN

Treatment operations for RCRA-regulated wastes treated at the RMWMF are described in this section.

The following treatment technologies may be used to treat RCRA-regulated wastes at the RMWMF:

- Chemical deactivation,
- Thermal deactivation,
- Amalgamation,
- Stabilization,
- Macroencapsulation, and
- Physical treatment.~~,~~

~~Stabilization, and~~
~~Thermal deactivation.~~

Sandia/DOE may use each technology to treat any of the wastes in the General Part A that include the particular technology in the process description. Treatment at the RMWMF may occur in Buildings 6920, 6921, 6925, and 6926. Treatment is~~will be~~ conducted in containers; therefore, it is not subject to the miscellaneous unit and environmental performance standards in 20 NMAC 4.1.500/40 CFR 264, Subpart X [~~6-14-00~~10-1-03]. Treatment effectiveness for each waste stream is discussed in Section 8.3~~2~~.

8.1 Treatment Operations

Waste treatment is performed at the RMWMF for one or more of the following reasons:

- T~~t~~o meet land disposal restrictions (LDRs);
- To allow for the safe storage of the waste; and/or
- T~~t~~o meet treatment, storage, or disposal facility (TSDF) requirements.

All of the treatment at the RMWMF is batch treatment performed on single packages of waste (each package is one 55-gallon drum or less, or a single item that may be larger than a drum. Each type of treatment is ~~will be~~ performed on batches of 500 pounds of waste or less, with the exception of physical treatment, which may occasionally involve very large, heavy items. Liquid wastes are ~~will be~~ treated in batches of 60 gallons or less.

Waste treatment may generate secondary waste streams (treatment residues). RCRA-regulated treatment residues may undergo additional on-site treatment to meet LDRs and/or be sent to an appropriate off-site TSDF.

The waste treatment processes described in this section are effective in addressing hazardous~~RCRA-regulated~~ characteristics in RCRA-regulated wastes, including the following:

- Solid items exhibiting the hazardous waste~~RCRA-regulated~~ characteristics of ignitability or reactivity may be chemically ~~or thermally~~ deactivated to eliminate the characteristic(s).

- Liquid waste exhibiting the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity may be chemically or thermally deactivated to remove the RCRA-regulated characteristic(s).

- Reactive (explosive) wastes may be treated using thermal deactivation techniques.

- Elemental mercury may undergo amalgamation to reduce or eliminate the leaching potential.

- Liquid wastes and particulates containing hazardous waste toxicity characteristic metals (excluding elemental mercury and high mercury subcategories) may be stabilized to reduce or eliminate the leaching potential of the hazardous waste constituents.

- Debris and wastes containing RCRA-regulated constituents hazardous waste toxicity characteristic metals (excluding elemental and high mercury subcategories defined in 20 NMAC 4.1.800/40 CFR 268) may be macroencapsulated to reduce or eliminate the leaching potential of the hazardous waste constituent(s).

- Solid items with hazardous constituents may be physically separated from larger items, and the size of individual pieces may be reduced.

- Pressurized containers may be punctured or opened to release the contents.

Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes may or may not require further management as hazardous wastes, as discussed in Appendix B, Section B.2.5. In accordance with LDRs, the following are managed as RCRA-regulated waste: treatment residue derived from the treatment of listed RCRA-regulated wastes, treated waste containing listed RCRA-regulated waste, and treated waste which continues to exhibit RCRA-regulated waste characteristics and/or does not meet treatment standards for underlying hazardous constituents.

Each waste treatment technology or process listed above is described in the following sections.

8.1.1 Chemical Deactivation

Sandia/DOE perform chemical deactivation in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. The containers vary in size depending on the quantity of waste to be treated, and include laboratory glassware, 5-gallon buckets, and 55-gallon drums.

Chemical deactivation refers to a number of chemical processes that can eliminate the hazardousRCRA-regulated waste characteristics of ignitability, corrosivity, and/or reactivity. Deactivation can be accomplished by several technologies (e.g., neutralization or, chemical oxidation, or stabilization). However, the intent of this section is to identify and describe specific methods or treatment trains which may be used at the RMWMF to deactivate ignitable wastes defined in 20 NMAC 4.1.200/40 CFR 261.21(a)(2) and (4) [6-14-0010-1-03], corrosive and reactive wastes defined in 20 NMAC 4.1.200/40 CFR 261.23 [6-14-0010-1-03]. Deactivation

may or may not result in a final waste form, depending on the process, and may be used as the first in a series of treatment steps.

Deactivation processes are conducted under carefully controlled conditions so that RCRA-regulated waste with the characteristic of reactivity is allowed to react in a slow, nonviolent manner. Allowing the reactive potential of the waste to be dissipated in this manner reduces or eliminates the reactive characteristic of the waste. Deactivation of reactive wastes is typically conducted in small batches under laboratory conditions such that process control can be easily maintained.

- Hydrides, deuterides, and tritides are deactivated by slow addition to an ice water bath.
- Deactivation of water reactive metals such as elemental sodium and lithium involves the slow and controlled addition of an appropriate alcohol/water solution. Alcohol/water addition is maintained until the water reactive potential of the waste has been eliminated.
- Deactivation of pyrophoric metal powders and particulates may be achieved by mixing waste in a portland cement matrix.
- Water-soluble oxidizers in particulate form are slowly dissolved in water to deactivate them as the first step in the treatment process. The resulting solution may undergo further treatment (e.g., neutralization and stabilization).
- Water-soluble concentrated liquid oxidizers such as hydrogen peroxide may be diluted with water in a controlled manner to make them safer to handle before deactivation with an appropriate chemical agent such as iron filings.

Chemical deactivation to remove the characteristic of corrosivity is the process of removing excess acidity or alkalinity from an aqueous liquid waste. Other uses may include pH adjustment to facilitate subsequent treatment; such pretreatment through deactivation may be necessary to prevent corrosive damage to equipment, deter undesirable reactions, and preclude the formation of unwanted byproducts.

Reagents added to achieve a desired pH are combined with liquid waste inside a mixing vessel or directly in the waste container. Common deactivating reagents include, but are not limited to, ~~caustic soda, lime, phosphine, calcium or sodium carbonate,~~ sodium hydroxide~~, and limestone~~ for acid wastes; and ~~hydrochloric,~~ phosphoric~~, or nitric~~ acid~~s~~ for alkaline wastes. The selection of reagents is dependent on the quantity of reagent required, cost, availability, and the potential byproduct(s). These deactivation processes are conducted under carefully controlled conditions in which the reagent is added to the waste slowly and mixed thoroughly. This allows the reaction to proceed in a nonviolent manner and allows the energy to be dissipated effectively. Ice may be used if needed to cool the mixture during the reaction. In the case of reactions that are expected to be strongly exothermic, wastes may be treated in small batches under laboratory conditions (similar to the deactivation of reactive wastes) such that process control can be easily maintained.

8.1.58.1.2 Thermal Deactivation

Sandia/DOE perform thermal deactivation of reactive RCRA-regulated wastes, including batteries, static-sensitive explosives, and explosive components, in a Sandia-designed and tested portable deactivation device that meets the definition of a container in 20 NMAC 4.1.100/40 CFR 260.10. The device is a thick-walled stainless steel vacuum apparatus equipped with an internal heated plate and sensors to measure temperature and pressure. The explosive deactivation device was designed to contain a detonation of 25 grams TNT-equivalents of explosive waste. The inside diameter of the cylinder is 8 inches, and it is 18 inches long. Because the device is portable, it may be used in any of the treatment areas in Building 6920 or 6921. It is shown in Figure 17.

ReactiveExplosive waste is placed on the plate, inserted into the cold unit, the unit is sealed and filled with an inert atmosphere (e.g., nitrogen), and the temperature of the heated plate is slowly raised until reaching a temperature at which the explosive being treated decomposes. Personnel use waste characterization data and/or published chemical information (e.g., "DOE Explosives Safety Manual" [DOE, 2002] or other chemical or engineering handbook) to determine the required temperature. The temperature is maintained for two hours to complete the decomposition. The unit is then cooled and decomposition gases are vented to a chemical fume hood with a high-efficiency particulate air filtration system.

8.1.68.1.3 Amalgamation

Sandia/DOE perform amalgamation of small quantities of elemental mercury in small (e.g., laboratory) containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The amalgamation process for liquid elemental mercury involves mixing liquid mercury waste with a powdered base metal. The amalgamation process immobilizes elemental mercury into a solid leach-resistant form that has minimal potential for emission of mercury vapor.

The two important operating parameters for effective treatment are: (1) the ratio of base metal to mercury, and (2) the efficiency of mixing. Copper or zinc areis typically used as base metals, but tin, nickel, gold, and sulfur may also be used. The base metal may be pretreated with acid to improve the effectiveness of the amalgamation reaction. For the small quantities of mercury that will be treated at the RMWMF, hand mixing the mercury and base metal using a mortar and pestle is sufficient to create an amalgam with uniform properties.

8.1.4 Stabilization

Sandia/DOE perform stabilization in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. Stabilization is a process of binding hazardous waste RCRA-regulated metals so that the metals become chemically part of the matrix or are physically bound within the matrix. The primary use of stabilization is to immobilize toxicity characteristic metals but many stabilization agents also eliminate free liquids. Typical waste forms suitable for stabilization include liquids, soils, and particulate-type wastes.

Process equipment for mixing waste and binder materials depends on the type of reagents used and the volume of waste to be treated. In-drum mixing is typically used for large volume waste

quantitiesstreams. Once waste and binder have been thoroughly mixed and placed in a container, the mass is allowed to cure and/or set. Smaller batches may be mixed by hand and allowed to cure in smaller containers (e.g., 5-gallon pails, and tubs and trays of various sizes).

Development of appropriate formulas is waste specific. Stabilization agents for toxic metals may include portland cement, pozzolansic, thermoplastics, organic polymers, and clays. However, other waste forms may require proprietary reagents that are available for specific applications. Additional reagents may be added to reduce contaminant leachability, reduce cure and/or set time, and increase strength.

Waste characteristics that are important to the success of the stabilization process for liquids may include volume percent of water, oil, solvents, or other organics; pH; and hazardous RCRA-regulated waste constituents. Waste characterization data are used to determine whether the waste is amenable to stabilization, any necessary pretreatment requirements, and the appropriate binding agent.

Once stabilization is selected, the binding agent is identified based on chemical compatibility with the waste form and contaminants present. Pretreatment may be required to assure compatibility between the waste and the binding agent (e.g., neutralization of liquid wastes to an acceptable pH range of 5.0 to 11.0). Once the proper binding agent(s) have been identified, bench-scale testing is performed to determine optimum amounts of each agent. In the case of low volume waste streams (e.g., less than approximately 0.26 gallons), bench-scale testing may not be practical and treatment is performed without bench-scale testing using the manufacturer's suggested quantities or by estimating binding agent quantities from previous experience. The stabilization process is performed by combining the predetermined quantities of binding agent(s) with the waste and thoroughly mixing, if appropriate. The resulting mixture is staged to allow an appropriate cure time.

8.1.28.1.5 Macroencapsulation

Sandia/DOE perform macroencapsulation in containers in Buildings 6920, 6921, and 6925 at the RMWMF. Macroencapsulation is generally applicable to debris or specific wastes, whereas stabilization (see Section 8.1.4) is generally applicable to liquids, sludges, and particulate-type wastes. Macroencapsulation is the process of completely encasing waste within a polymer coating or concrete, or within a jacket of inert inorganic materials. The primary use of macroencapsulation is to immobilize wastes such as debris-type solids containing hazardous wasteRCRA-regulated constituents by completely surrounding the waste material with a leach-resistant coating.

Sandia/DOE pPerforming macroencapsulation using one of three processes:
involves coating waste with polymer agents within a mold or

- Eencasing the waste in concrete, typically within a larger container that serves as a mold.

- Coating the waste with polymer agents within a mold. Polymers typically used for macroencapsulation include, but are not limited to, asphalt, polyethylene, thermosetting plastics, and resins that can be polymerized under ambient temperatures in the presence of a catalyst. Equipment used for macroencapsulation may include molds, polymer extrusion equipment, and resin mixing equipment. In-drum macroencapsulation

may also be performed with the drum acting as the mold. Temperature control of polymer macroencapsulation processes is critical and carefully maintained to assure that adequate coating occurs.

For example, Sandia/DOE perform macroencapsulation with a chemically inert resin (typically polyethylene), using 30-gallon containers (metal baskets). Each The basket containing the solid RCRA-regulated waste items is placed in a 50-gallon mold (similar in size and shape to a 55-gallon drum). The basket is designed to fit into the mold with one to two inches of clearance on all sites, the top, and the bottom. The mold containing the basket and waste items that is then filled with melted resin that is heated using a commercially available extrusion unit. Each basket is used only once because it becomes encapsulated within the inert resin and is part of the final waste form. After the resin cools and solidifies, the mold is removed, the waste form is turned over and more polyethylene is added to form a final cap on the end. The completed waste form is a cylinder slightly smaller than a 55-gallon drum.

- Placing the waste inside a commercially available container made of an inert resin such as polyethylene. After the wastes and inert void-filler materials are placed in the container, the resin is heated to seal the container and lid (e.g. using a resistance-heated wire system embedded in the container lid). The container may also include an outer metal shell to provide additional structural strength. Sandia/DOE use containers of various sizes, depending on the volume of waste items to be macroencapsulated.

8.1.38.1.6 Physical Treatment

Sandia/DOE perform physical treatment (volume reduction through separation) in Buildings 6920 and 6921 at the RMWMF. The treatment includes:

- consists of Rreducing waste volume by using commercially available tools (e.g., hammers, screwdrivers, wrenches, pliers, saws, drills, cutters, etc.) to separate items with hazardous wasteRCRA-regulated constituents from larger items or from each other, including removal of coating and filler materials. In some cases, the RCRA-regulated waste item may undergo further physical treatment or treatment in containers.

- Removing coating and filler materials (e.g. resins) by dissolution in containers (e.g., trays or pails) in order to facilitate separation of items with hazardous waste constituents from each other or from other items. Dissolution may take place within the fume hood(s) that are present in each building. The dissolved material may undergo further treatment in containers.

- Reducing the size of waste items by using tools (e.g. mallets, cutters, etc.) to crush or cut items into smaller pieces. The pieces may undergo further treatment in containers.

- Physical treatment also includes puncturing aerosol cans within a container to allow recovery of the contents. The liquid contents of the aerosol cans are collected in the container, and any gaseous propellants are filtered through a carbon filter attached to the container. Liquids collected may undergo further treatment in containers.

- Releasing pressurized contents of containers other than aerosol cans (e.g., gas cylinders). Organic gaseous contents are filtered through a carbon filter. All gaseous contents are vented to a chemical fume hood with a high-efficiency particulate air filtration system.

8.1.78.2 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Most of the RCRA-regulated wastes treated at the RMWMF are inorganic and are not expected to generate emissions during treatment. Unit personnel perform chemical reactions that could generate emissions (deactivation and stabilization) in a controlled manner as described above to further minimize potential air emissions. Treatment operations that may generate air emissions of gases, vapors, or particulates are conducted in a controlled manner within fume hoods or with other local ventilation if possible. Each fume hood provides an enclosed work area equipped with a localized exhaust system. Air flow from each fume hood passes through a high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The filters do not remove organic constituents entrained in the air flow. RMWMF personnel employ the practices described in Section 8.2 of the General Part B to prevent releases of organic constituents to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

The RMWMF treatment operations do not employ processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA.

8.2.2 Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [6-14-0010-1-03]. Equipment used in such service at the RMWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-0010-1-03]. The equipment location will be noted in the RMWMF records. Equipment use will also be noted in the records.

8.2.3 Subpart CC

Unit personnel follow the practices described in Section 8.2 of the SNL/NM General Part B. Unit personnel do not perform any treatment subject to Container Level 3 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]).

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

8.28.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

As required in 20 NMAC 4.1.900/40 CFR 270.23(d) [6-14-0010-1-03], Sandia/DOE evaluate treatment effectiveness by appropriate methods for each batch of waste treatedconsiderations and demonstrations are provided for the treatment technologies used or proposed for use at the RMWMF. In many cases (e.g. stabilization), Unit personnel treat small samples of a batch of waste using a single agent in various proportions or using various agents to determine which is most effective. That process is then used in treating the rest of the waste. Treatment effectiveness will be verified through Characterization evaluation of the treated waste is described in accordance with Appendix B (Section B.2.53.3.2) of the SNL/NM General Part B.

8.3.1 Chemical Deactivation

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for completeness of chemical reaction for solid items that were treated to remove the characteristic of reactivity.
- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Check whether treated waste is an oxidizer as defined in 49 CFR Part 173.
- Visual check for liquids that were treated to remove the characteristic of reactivity.
- Fingerprint chemical check for the presence of sulfides and cyanides if their presence caused the waste to be reactive.
- Fingerprint check for pH of liquids that were treated to remove the characteristic of corrosivity.

8.3.2 Thermal Deactivation

Unit personnel check treatment effectiveness through proper operation of the unit (maintaining specified decomposition temperature for specified length of time). In some cases, personnel may visually check for evidence of chemical reaction (e.g., color change or structural change) in the solid item.

8.3.3 Amalgamation

A sample of each batch of treated waste is analyzed for the presence of mercury using the toxicity characteristic leaching procedure (TCLP) as described in Appendix B.

8.3.4 Stabilization

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for the presence of free liquids.
- Paint filter test to determine whether free liquids are present if the treated waste is amorphous and may contain some liquids.
- Analysis of one or more samples of the treated waste using the TCLP for hazardous waste toxicity characteristic metals. If the stabilization is intended to meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40, the analysis will include underlying hazardous constituents as described in Appendix B.

8.3.5 Macroencapsulation

Unit personnel visually check each macroencapsulated item to verify that it is completely encased in the inert resin or concrete.

8.3.6 Physical Treatment

Unit personnel check treatment effectiveness using one of more of the following methods (depending on the goal of the treatment performed):

- Visual check that item(s) with hazardous waste constituents has(ve) been completely separated from other item(s).
- Visual check that pieces are the desired size.
- Visual check that punctured aerosol cans are empty and the contents are in the container.
- Leaving the container for a time to allow it to continue venting after visual and/or audible evidence indicates it is empty. The length of time would be determined by the size of the container, the contents, and the strength of the evidence.

9.0 REFERENCES

DOE, see US Department of Energy

DHHS, see US Department of Human Health Services

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2001, "Standard for Water Spray Fixed Systems for Fire Protection", NFPA 15, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, " Standard for Dry Chemical Extinguishing Systems," NFPA 17, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 20043, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 75.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 1996, "DOE Explosives Safety Manual" DOE M 440.1-1, U.S. Department of Energy, Washington, D.C.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

U.S. Department of Energy (DOE), 2002 "DOE Explosives Safety Manual, LLNL Work Smart Standards Version" Lawrence Livermore National Laboratory

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

This page intentionally left blank.

Sandia National Laboratories/New Mexico
Auxiliary Hot Cell Facility
Part B Permit Application

Module V

Revision 4~~3~~.0

November 2004~~3~~

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... AHCF-iii
LIST OF FIGURES ..... AHCF-iv
ACRONYMS AND ABBREVIATIONS ..... AHCF-v
1.0 GENERAL UNIT OPERATIONS AHCF-2
1.1 Designated Waste Management Areas AHCF-2
1.1.1 Hot Cell AHCF-3
1.1.2 Work Area AHCF-3
1.1.3 Storage Silos AHCF-4
1.1.4 Container Storage AHCF-4
1.2 Unit Operations AHCF-5
1.2.1 Operation of Containment Systems AHCF-5
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes AHCF-5
1.2.3 Preparedness and Prevention AHCF-6
1.2.3.1 Required Equipment AHCF-6
1.2.3.2 Testing and Maintenance of Equipment AHCF-7
1.2.3.3 Access to Communications or Alarm Systems AHCF-7
1.2.4 Hazards Prevention AHCF-7
1.2.4.1 Preventing Hazards in Unloading AHCF-7
1.2.4.2 Preventing Runoff or Flooding AHCF-8
1.2.4.3 Preventing Contamination of Water Supplies AHCF-8
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages AHCF-8
1.2.4.5 Preventing Undue Exposure AHCF-8
1.2.4.6 Preventing Releases to the Atmosphere AHCF-9
1.3 Container Storage Practices AHCF-9
1.3.1 Container Types and Labeling AHCF-10
1.3.2 Container Handling AHCF-10
1.3.2.1 Condition of Containers AHCF-10
1.3.2.2 Aisle Space and Storage Configuration AHCF-10
1.3.2.3 Compatibility of Waste with Containers AHCF-10
1.3.2.4 Presence of Liquids in Containers AHCF-10
1.4 Treatment Operations AHCF-11
2.0 UNIT DESCRIPTION AND INFORMATION AHCF-12
2.1 Security Procedures and Equipment AHCF-12
2.1.1 Barriers and Means to Control Entry AHCF-12
2.1.2 Warning Signs AHCF-13
2.2 Traffic Pattern, Volume, and Controls AHCF-13
2.2.1 Traffic Patterns AHCF-13
2.2.2 Traffic Volumes AHCF-13
2.2.3 Traffic Control Signals AHCF-1413
2.3 Unit Location Information AHCF-14
2.3.1 Seismic Standard AHCF-14
2.3.2 Floodplain Standard AHCF-14
2.4 Topographic Maps AHCF-14
2.5 Groundwater Monitoring AHCF-15

TABLE OF CONTENTS (Concluded)

3.0 WASTE ANALYSIS PLAN AHCF-16
4.0 INSPECTION plan AHCF-17
5.0 PERSONNEL TRAINING AHCF-20
6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE AHCF-21
7.0 CLOSURE PLAN AHCF-24
7.1 Unit Description AHCF-24
7.2 Estimate of Maximum Waste in Storage AHCF-25
7.3 Closure Conditions AHCF-25
7.4 Closure Activities and Schedule AHCF-26
7.5 Sampling and Analysis Plan AHCF-27
7.5.1 Sampling and Analysis Scope AHCF-27
7.5.2 Sampling Methodology AHCF-29
7.5.2.1 Sample Locations AHCF-29
7.5.2.2 Sample Collection AHCF-31
7.5.2.3 Sampling Equipment AHCF-31
7.5.2.4 Sample Equipment Decontamination AHCF-32
7.5.2.5 Sample Identification AHCF-33
7.5.2.6 Sample Preservation and Holding Time AHCF-33
7.5.3 Demonstration of Clean Closure AHCF-34
7.5.4 Quality Control AHCF-34
7.5.5 Data Management and Reporting AHCF-35
7.6 Decontamination and Verification Procedures AHCF-35
8.0 TREATMENT PLAN AHCF-36
8.1 Treatment Operations AHCF-36
8.1.1 Chemical Deactivation AHCF-37
8.1.2 Stabilization AHCF-38
8.1.3 Macroencapsulation AHCF-39
8.1.4 Physical Treatment AHCF-40
8.2 Preventing Releases to the Atmosphere AHCF-40
8.2.1 Subpart AA AHCF-41
8.2.2 Subpart BB AHCF-41
8.2.3 Subpart CC AHCF-41
8.3 Treatment Effectiveness AHCF-41
8.3.1 Chemical Deactivation AHCF-42
8.3.2 Stabilization AHCF-42
8.3.3 Macroencapsulation AHCF-42
8.3.4 Physical Treatment AHCF-43
9.0 REFERENCES AHCF-44

LIST OF TABLES

Table No.	Title
1	Fire Suppression System at the Auxiliary Hot Cell Facility
2	Auxiliary Hot Cell Facility Inspection Criteria and Frequency
3	Auxiliary Hot Cell Facility Emergency Equipment and Locations
4	Auxiliary Hot Cell Facility Emergency Coordinator List
5	Auxiliary Hot Cell Facility, Summary of Random Sampling Program
6	Auxiliary Hot Cell Facility, Random Sampling Grids

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Auxiliary Hot Cell Facility at Sandia National Laboratories/ New Mexico
2	Location of the Auxiliary Hot Cell Facility (AHCF) in Technical Area (TA) V
3	Auxiliary Hot Cell Facilities, Resource Conservation and Recovery Act-Regulated Waste Management Areas
4	Auxiliary Hot Cell Facility, Traffic Routes and Controls
5	Topographic Map, Auxiliary Hot Cell Facility
6	Auxiliary Hot Cell Facility, Access Control Features
7	Auxiliary Hot Cell Facility, Drainage Control Features
8	Auxiliary Hot Cell Facility, Evacuation Routes
9	Auxiliary Hot Cell Facilities, Emergency Response and Access Information
10	Auxiliary Hot Cell Facility, Emergency Response and Access Information (Detail)
11	Auxiliary Hot Cell Facility, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
DOE	U.S. Department of Energy
ft	foot/feet
HEPA	high-efficiency particulate air
HSWA	Hazardous and Solid Waste Amendments
ID	inner diameter
in.	inch(es)
m^3	cubic meter(s)
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	technical area
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO
AUXILIARY HOT CELL FACILITY
PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Auxiliary Hot Cell Facility (AHCF) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003June 14, 2000 [6-14-0010-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage and treatment operations at the AHCF that require a permit. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application", hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the SNL/NM General Part B, and in appendices to the General Part B meet the applicable requirements for the AHCF that are specified in 20 NMAC 4.1.500/40 CFR 264 [6-14-0010-1-03] and 20 NMAC 4.1.900/ 40 CFR 270 [6-14-0010-1-03].

Sandia/DOE also prepared a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 75.0" (SNL/NM, 20043), hereinafter referred to as the SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The SNL/NM General Part A serves as a companion document to the General Part B and Unit-specific Part B modules, including this AHCF Part B Permit Application.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Auxiliary Hot Cell Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-00 10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The AHCF occupies 5578 square feet in Building 6597 in Technical Area (TA)-V. Operations include storage of RCRA-regulated wastes in containers, repackaging wastes, and treating the wastes as needed to render them more suitable for shipment to off-site treatment and/or disposal facilities. All of the RCRA-regulated wastes listed in the General Part A may be managed at the AHCF. Sandia/DOE currently operate the AHCF under interim status in accordance with the terms of the most recent Part A approved by submitted to the New Mexico Environment Department (NMED) (November 29, 2004May 2002) and the most recent Part B permit request submitted to NMED (November 29, 2004April 16, 2003).

1.0 GENERAL UNIT OPERATIONS

This section provides general descriptions of the AHCF waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage practices. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable hazardousRCRA-regulated waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [6-14-0010-1-03], and 20 NMAC 4.1.900/ 40 CFR 270.14 and 270.15 [6-14-0010-1-03].

1.1 Designated Waste Management Areas

The location of the AHCF at SNL/NM is shown on Figures 1 and 2. The location of the AHCF within TA-V is shown on Figure 2. The AHCF includes will have fourfive designated WMAs within the high bay of Building 6597: the hot cell; the work area neararound the hot cell (including ; the fume hood); the storage silos; and container storage in the High Bay (Figure 3). The high bay of Building 6597 is a concrete and steel structure, with concrete masonry unit (CMU) walls and a concrete floor. The roof consists of steel joists covered with a metal deck, rigid insulation, and a single-ply roof membrane. The east side of the high bay is equipped with an overhead crane that can be used to move large items between the hot cell, the storage silos, and the work area. The floor of the work area is coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor. The floor of the container storage area will be covered with a similar coating. The high bay area of Building 6597 is also equipped with a system of floor trenches covered with steel plates or grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

Containers holding RCRA-regulated liquid wastes in the AHCF WMAs will be stored on portable spill pallets orand pans covered with grating. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives and other liquids. The containers of liquids (typically 5- to 30-gallon capacity) will be stored on the grating. Any liquids released from the containers will drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [6-14-0010-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3) [6-14-0010-1-03].

Each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

The containers are stored indoors and are protected from precipitation by the building, and by the slope of the asphalt pavement and gravel-covered soil surface outside the building that directs storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/ 40 CFR 264.175(b)(4).

The fume hood in the work area is equipped with a negative pressure ventilation system. In addition, a flexible exhaust hose can be attached to the same system, allowing for localized negative pressure ventilation from the work area. The air flow from the ventilation system passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The following sections provide descriptions of the storage structure, location, and capacity of each WMA. Treatment practices are summarized in Section 1.4 and discussed in detail in Section 8.0 of this module.

1.1.1 Hot Cell

The hot cell is located in the high bay area of Building 6597. Waste management activities include repackaging RCRA-regulated wastes for shipment to off-site TSDFs, and reducing waste volume by using tools to separate items with hazardous waste constituents from larger items. Outside overall dimensions of the hot cell are 16 feet (ft), 8 inches (in.) square and 16 ft, 2 in. high. Inside space dimensions are 100 square feet with a height of 13-ft, 10-in. The inside surfaces are lined with stainless steel. An 18-in. thick concrete foundation mat supports the hot cell. The hot cell walls are constructed of inner and outer precast concrete panels that are held apart by threaded rods. The space between the panels is filled with sand. The roof sections are also constructed of reinforced concrete panels with sand between them. Each individual roof panel is designed to structurally support one 5,000-pound point load. Each roof section supports a roof port and roof plug. The hot cell is equipped with manipulator arms that allow personnel to handle items remotely. The storage capacity of the hot cell is equivalent to 900 gallons of RCRA-regulated waste.

1.1.2 Work Area

The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Activities include treatment and storage. Treatment includes deactivation, stabilization, macroencapsulation, and physical treatment. Personnel also repackage wastes for shipment to off-site TSDFs. The work area may be used for storage of up to 1100 gallons of RCRA-regulated waste.

From time to time, a temporary tent-like room may be erected in the work area north of the hot cell and east of the permanent shield wall to accommodate large RCRA-regulated waste items and containers. If the RCRA-regulated item or container must be handled remotely, the temporary room will be built directly against the permanent shield wall to allow the use of the manipulators at the shield wall. Each time the temporary room is erected, package-specific considerations will determine details of the design; however, basic construction will consist of polyvinyl chloride or metal framing, clear or translucent plastic roof and walls, and plastic doors. The temporary room will operate at a slight negative pressure.

1.1.3Fume Hood

AThe 6-ft-wide walk-in fume hood is, located in the work area north and east of the hot cell; it, can accommodate two 55-gallon drums placed side by side. Unit personnel treat and repackage RCRA-regulated wastes in the fume hood. The fume hood is included in the storage capacity for the overall work area.

1.1.41.1.3 Storage Silos

Four 10-in. inside diameter (ID), 15-ft deep floor silos and two 30-in.-–ID, 15-ft-–deep floor silos are located in the work area north of the hot cell and east of the permanent shield wall (Figure 3). These silos have removable locking-type shield plugs. The tops of the silos are raised slightly above the general floor level to reduce the possibility for the entry of water into the silo.

Two additional storage silos are located within the hot cell. Each silo is 10-in. ID. One silo is 15-ft deep and the other is 11-ft, 8-in. deep.

Each silo is constructed of concrete, and each is lined with a removable welded stainless steel sleeve. The sleeves do not provide secondary containment for the small quantities of liquid wastes that may be stored in the silos; secondary containment is provided by outer storage containers. The silos are typically used only for storage of RCRA-regulated wastes that exhibit high external radiation dose rates and therefore present hazards to personnel. The maximum waste storage capacity of the silos is 1,456 gallons.

1.1.51.1.4 Container Storage (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR, Subpart I)

Containers of RCRA-regulated waste will be stored in the high bay, south and west of the hot cellHigh Bay. The footprint of the storage area will vary, depending on the quantity and configuration of the wastes. The floor of the storage area will be coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor.

The area High Bay is also equipped with a system of floor trenches covered with grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

The waste storage capacity is 3,5202,200 gallons.

1.2 Unit Operations

The AHCF WMAs will be used to store and/or treat any of the wastes bearing U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers listed in the SNL/NM General Part A. Many of the wastes may also be treated in the AHCF WMAs; specific treatment operations are discussed in Sections 1.4 and 8.0 of this Module.

Information regarding operations requiring a permit at of all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the SNL/NM General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.500/40 CFR 270.14[b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Liquid wastes released from individual containers will accumulate in the spill pallets. Unit personnel will begin taking action to evaluate and remove accumulated liquids in the spill pallets upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

DOE/Sandia do not store bulk liquids in the storage silos; any liquid wastes will be present in small containers within larger containers that provide secondary containment.

The floor trenches are not used for secondary containment, and Sandia/DOE do not anticipate that liquid RCRA-regulated wastes would enter the trenches. RCRA-regulated waste liquids would only be released from containers of stored liquid wastes upon the (unlikely) failure of the spill pallets, and the largest single container would contain 122 gallons. The liquid would be contained in the trench, and would be handled as described above upon discovery.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177; 20 NMAC 4.1.900/ 40 CFR 270.14[b][9] and 270.15[c] and [d])

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the AHCF. Sources of ignition that may be present at the AHCF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the SNL/NM General Part B. Additional AHCF-specific features, potential ignition and reaction sources, precautions, and practices include:

- Ignitable and reactive wastes are segregated from other wastes within the storage area. The containers are labeled as described in Section 1.2.1 of the General Part B. Unit personnel typically place a portable sign near the wastes, use prominent labels, or use another method to assist in to identifying them as ignitable and/or reactive.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas; each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Water-reactive wastes are not routinely stored in the Unit. If water-reactive wastes are present, they will be isolated from water contact as described in Section 1.1.2.1 of the General Part B, and their location will be identified through the use of signs, labels, or some other method.

- Forklifts are not used for waste movement near treatment operations involving ignitable or reactive wastes to minimize potential sources of ignition while containers are or may be open.

- Wastes are mixed together on a very limited basis during the treatment and repackaging operations at the Unit. Ignitable and reactive wastes are treated or mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994], or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions. Treatment operations are described in Section 8.0 of this module.

1.2.3 Preparedness and Prevention (20NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the AHCF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrants closest to the AHCF are shown in Figure 9.

The high bay of Building 6597 is equipped with an automatic fire suppression system; summarized below.

Table 1
Fire Suppression System at the Auxiliary Hot Cell Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6597	13	Storage	Automatic sprinkler, wet pipe	GB/FS

[a] National Fire Protection Association (NFPA), 2002
[b] Sprinklers are either glass bulb or fusible solder type, typically designed to open at temperatures of 155ºF or higher.

Information on other required equipment located at the AHCF is provided in Section 6.0 and Table 3 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the AHCF is provided in Appendix C of the ~~SNL/NM~~ General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the AHCF is provided in Section 1.1.3.3 of the ~~SNL/NM~~ General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the AHCF to prevent hazards. Additional information applicable to the AHCF and all other Units at SNL/NM is included in Section 1.1.4 of the ~~SNL/NM~~ General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

AHCF personnel employ the practices described in Section 1.1.4.1 of the ~~SNL/NM~~ General Part B to prevent hazards in unloading. Unit personnel will typically perform loading and unloading activities just inside~~outside~~ the rollup door on the north side of the WMA (Figure 6). The floor~~pavement~~ is level and in good condition, and there is sufficient room for operating the vehicles and equipment.

Drums and other containers of RCRA-regulated waste will typically be strapped together on a pallet before being loaded onto vehicles. Containers will typically be transported within the Unit with drum dollies or pallet jacks.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land surrounding the AHCF slopes gently toward the west. Sheet-flow runon of surface water from surrounding areas outside the TA is prevented from entering the TA by a diversion berm east of TA-V that diverts storm water to the north and south.

The floor of the high bay in Building 6597 is slightly higher than the surrounding ground, serving to direct storm water away from the building. The asphalt and concrete pavement around the AHCF slopes toward a storm drain that directs stormwater toward the west.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that ~~RCRA-regulated waste~~ management of RCRA-regulated wastes ~~activities~~ at the AHCF will affect water supplies, as described in Section 1.1.4.3 of the ~~SNL/NM~~ General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B.

The AHCF is equipped with a minimum of 90 minutes of general emergency lighting along the paths of egress. With respect to ~~RCRA-regulated~~ waste handling~~management operations~~, backup power to the chain hoist will be required only during the short periods that the bridge crane is being used for an in-air transfer of RCRA-regulated waste. The bridge crane locks in place and is inoperable during a power outage. Portable generators can provide backup power to the chain hoist whenever the bridge crane is in use. The chain hoist, and tethers if necessary, will be used to lower any suspended packages to a safe configuration until power is restored unless leaving the package suspended is considered a safe configuration. No other AHCF systems require redundant power supplies.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

AHCF personnel employ the practices described in Section 1.1.4.5 of the ~~SNL/NM~~ General Part B to prevent undue exposure.

The enclosed work area and localized ventilation system in the fume hood and the local ventilation system in the work area provide additional protection for Unit personnel performing treatment operations. Anticipated emissions from treatment operations are discussed in Section 8.2. ~~In addition, a negative pressure ventilation system is provided for the waste management area. The ventilation air flow from these areas passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.~~

The ACHF has several features (e.g. shielding and remote operation capabilities) that provide protection for personnel managing RCRA-regulated wastes that exhibit high external radiation dose rates. The silos will typically be used to store such wastes, providing additional protection for Unit personnel.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

AHCF personnel employ the practices described in Section 1.1.4.6 of the ~~SNL/NM~~ General Part B to prevent releases to the atmosphere during storage.

Subpart AA

AHCF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [~~6-14-00~~10-1-03]. Equipment used in such service at the AHCF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [~~6-14-00~~10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [~~6-14-00~~10-1-03]. The equipment list will be maintained in the AHCF records. Equipment use will also be noted in the records.

Subpart CC

Unit personnel follow the practices described in Section 1.1.4.6 of the ~~SNL/NM~~ General Part B and maintain compliance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the Unit.

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [~~6-14-00~~10-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264 Subpart I)

Container storage practices applicable to the AHCF are presented in the following sections.

1.3.1 Container Types and Labeling

RCRA-regulated waste Ccontainers used for storage of RCRA-regulated wastesstored at the AHCF are most often strong, tight containers such as steel drums, steel boxes, wooden crates, plastic containers, casks, and cylinders. Unit personnel use the container labeling practices described in Section 1.2.1 of the General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

AHCF personnel employ the container handling practices described in Section 1.2.1 of the General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the AHCF is maintained as indicated in Section 1.2.2.1 of the SNL/NM General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

AHCF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the SNL/NM General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than three pallets high. Box-shaped containers may be stacked three high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

AHCF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the SNL/NM General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

AHCF personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the SNL/NM General Part B before storing containers in areas that are not equipped with secondary containment.

1.4 Treatment Operations

RCRA-regulated wastes are treated at the AHCF by the following methods:

- Chemical deactivation (performed in the work area, including the fume hood).
- Stabilization (performed in the work area, including the fume hood).
- Macroencapsulation (performed in the work area, including the fume hood, and/or the hot cell).
- Physical treatment (performed in the work area, including the fume hood, and/or the hot cell).

The treatment practices applicable to the AHCF are discussed in detail presented in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.5 and .900/40 CFR 264 270 [6-14-0010-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-0010-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of the SNL/NM General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the AHCF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The doors to Building 6597 are kept closed and locked. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the SNL/NM Technical Area gates during non-operational hours.

Unit personnel have Sandia-issued badges. Individuals who do not have Sandia-issued badges are escorted. These procedures limit access to the AHCF RCRA-regulated WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [6-14-0010-1-03].

The AHCF is located in TA-V (Figures 1 and 2). TA-V is enclosed by an 8-ft-high chain-link fence topped with barbed wire. Regular entries into and exits from TA-V are through

Building 6577, the Perimeter Access Building, or through the adjoining vehicle gate. TA-V access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-V.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

Building 6597 and the entrance to the AHCF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish are legible from a distance of 25 ft, and can be seen from any approach to the part of Building 6597 that houses the AHCF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the ~~SNL/NM~~ General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the AHCF include Wyoming Boulevard, Hardin Boulevard (formerly O Street), P Street, and Pennsylvania Avenue. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved road to TA-V turns southwestward off Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Entrance gate.

Waste transport vehicles travel along a 2-lane asphalt-paved drive to enter TA-V from the two-lane paved road as shown on Figures A-4 and A-6 in Appendix A of the ~~SNL/NM~~ General Part B. Vehicles must stop at a gate prior to entering or leaving TA-V. Within TA-V, waste is transported on asphalt- or concrete-paved surfaces (Figure 4).

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, Hardin Boulevard, and P Street are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Fewer than 5 vehicles typically travel to the AHCF per week. These include flatbed trucks and trailers carrying supplies and containers of RCRA-regulated waste to and from the AHCF.

2.2.3 Traffic Control Signals

Within TA-V, there are no traffic control signals or signs. Vehicles must stop at the vehicle gate prior to entering or leaving TA-V. Vehicle presence within TA-V is limited to waste transport and other work vehicles. Therefore, signals or signs are not necessary to control traffic within TA-V.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the AHCF are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the SNL/NM General Part B [SNL/NM, 2003b]).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the AHCF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the SNL/NM General Part B [SNL/NM, 2003b]).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [6-14-0010-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [6-14-0010-1-03]).
- Surface waters, including intermittent streams, near the AHCF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [6-14-0010-1-03]).
- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [6-14-0010-1-03]). The area surrounding the AHCF is occupied by other Sandia-controlled operations (industrial land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the ~~SNL/NM~~ General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [~~6-14-00~~10-1-03]).

- Legal boundaries of SNL/NM (including the AHCF) is provided as Figure A-2 in Appendix A of the ~~SNL/NM~~ General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [~~6-14-00~~10-1-03]).

- Access control features at the AHCF (e.g., fences, gates) are shown on Figures 5 and 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [~~6-14-00~~10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the AHCF are shown on Figure A-2 in Appendix A of the ~~SNL/NM~~ General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [~~6-14-00~~ 10-1-03]).

- The location of the AHCF and associated WMA structures, loading and unloading areas, roads, and sanitary sewers at the AHCF are shown on Figures 5 and 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [~~6-14-00~~10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [~~6-14-00~~10-1-03].

- Locations of the AHCF and AHCF WMAs are shown on Figures 3 and 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [~~6-14-00~~10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the AHCF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [~~6-14-00~~10-1-03], SNL/NM has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the AHCF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The AHCF is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor is the AHCF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/ 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, "General Waste Analysis" [6-14-0010-1-03], waste analysis requirements applicable to all Units, including the AHCF, are addressed in Appendix B of the SNL/NM General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [6-14-0010-1-03] require that waste management areas (WMAs) and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardousRCRA-regulated waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to RCRA-regulated waste management of RCRA-regulated wastesactivities to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. AHCF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 2, with the inspection criteria and frequency. The items listed in the table are inspected in each AHCF WMA.

Automatic fire suppression systems are included in Table 2. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on in accordance with the requirements of NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" (NFPA, 2002) as described in Section 1.1.3.2 of the General Part B.

Performing inspections of all areas at the AHCF where RCRA-regulated wastes are handled may expose Unit personnel to unnecessary radiation if the wastes exhibit high external radiation doses. In order to maintain the radiation exposure to levels as low as reasonably achievable (ALARA), Sandia/DOE will conduct alternative inspections of the storage silos when such wastes are present. Instead of directly inspecting the wastes while they are stored in the silos directly, Unit personnel will visually inspect the empty silos and the RCRA-regulated waste containers or packages before they wastes are placed in the silos, and will inspect the containers when they are removed from the silos. If Unit personnel do not observe any indications of deterioration in the empty silos, or damage to or release from the RCRA-regulated waste items as they are removed from the silos, the lack of visible evidence of releaseat will be considered sufficient to determine that there have not been releases of RCRA-regulated wastes.

The visual inspections of all areas at the AHCF may be conducted via camera from a remote area if needed to maintain ALARA conditions for the Unit personnel.

Table 2
Auxiliary Hot Cell Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 3 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash / safety shower	Operational and in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, and in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building / storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Overhead crane	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Storage silos	Liner in good condition, no cracks or visible deterioration	Prior to waste storage. Monthly otherwise when empty.
Storage silo covers	In good condition, no cracks or excessive wear	Prior to waste storage. Monthly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Treatment area	Good condition, clean, uncluttered, no spills	Prior to treatment. Monthly otherwise.

Table 2 (Concluded)
Auxiliary Hot Cell Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Fume hood	Good condition, clean, no deterioration	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no ~~releases or~~ deterioration)~~; fume hood, drum, and room ventil~~	Prior to treatment (consumable items) or daily when and where wastes are treated (tools). Monthly otherwise.
SECURITY DEVICES		
Warning signs	Present and in good condition	Monthly
Doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
~~STORED~~ CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled.* Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled.* Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled.* Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled.* Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled.* Weekly otherwise.
Location	Correct aisle space, correct stacking (3 maximum)	Check individual containers as they are handled. Weekly otherwise.

* Containers will be inspected prior to placement into and immediately following removal from a storage silo.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained in Building 6597 or in the TA-V electronic facility documentation system. Inspection records for previous calendar years are maintained in department offices of AHCF personnel or the SNL/NM Records Center.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/ 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [6-14-0010-1-03] "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the AHCF.

AHCF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the SNL/NM General Part B.

Only the following job descriptions identified in Appendix D, Table D-2 are applicable at the AHCF: Training Director, Project Leader, Emergency Coordinator, Chemist, Field Technician, Special Projects Staff, Inspector, and Unit Operations Support Staff.

Training records for AHCF personnel are maintained in the department offices of AHCF personnel.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The Sandia /DOE "Site-Wide Contingency Plan" is included as Appendix E of the SNL/NM General Part B. Supplemental AHCF-specific information is included in this section, in Figures 8, 9, and 10, and in Tables 3 and 4 of this module. Current copies of the sSite-wWide cContingency pPlan and this supplemental information are maintained in department offices of AHCF personnel, in the TA-V emergency control room, and at the SNL/NM Emergency Operations Center.

The AHCF is located in the northeast (high bay) part of Building 6597 in TA-V at SNL/NM and is used to repackage, store, and treat RCRA-regulated wastes. Building 6597 is a concrete masonry unit building; the high bay area of the building has with a roof height of 35 feet. The AHCF includes fourfive WMAs:

- The hot cell is constructed of precast concrete with a stainless steel lining. A permanent shield wall extends north of the cell. The cell is used for repackaging and treatment.

- The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Waste management activities in the work area include storage and treatment and may require the use of a temporary room.

- A 6-ft-wide walk-in fume hood in the work area, located north and east of the hot cell, can be used for storage and treatment.

- Eight floor silos (six in the work area and two in the cell) can be used for storage.

- Containers of RCRA-regulated waste may also be stored in the high bay, typically south and west of the hot cell..

RCRA-regulated wastes bearing the U.S. EPA Hazardous Waste Numbers listed in the General Part A may be stored and/or treated at the AHCF WMAs. Wastes will be segregated according to compatibility groups.

During an emergency, Unit personnel will evacuate the unit as described in Section E.5.2 of the sSite-wide cContingency pPlan. In addition, Unit personnel may choose to implement a coordinated evacuation of all of TA-V. To notify all TA-V personnel, Unit personnel would activate the TA-V alarm located on the north wall of the high bay area of the building.

During an emergency, Sandia security officers provide unimpeded access to the AHCF for authorized personnel as directed by the IC. Security officers also provide additional emergency assistance as required by the IC. Personnel who are authorized to enter TA-V in case of emergencies are members of the SNL/NM Emergency Response Organization, including medical personnel, the KAFB fire department, and KAFB security police.

Figure 8 presents the evacuation routes for the AHCF. Figures 9 and 10 present emergency response and access information for the AHCF. Table 3 lists the emergency equipment typically available at the AHCF. Table 4 lists the emergency coordinators for the AHCF.

Table 3
Auxiliary Hot Cell Facility, Emergency Equipment and Locations

Building 6597

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower/eyewash	Near north entrance to Building 6597 high bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Near north entrance to Building 6597 high bay
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage in Building 6597
	Recovery drums and containers	In equipment storage in Building 6597
	Personal protective equipment (goggles and/or safety glasses, gloves)	Near north entrance to Building 6597 high bay
Internal Communication and Alarm System	Voice communication	
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One near each exit door in Building 6597 high bay
	Audible fire alarms	Located throughout the building
External Communication System	Telephones	Near north entrance to Building 6597 high bay
	Emergency public address system	Near north entrance to Building 6597 high bay
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One near each exit door in Building 6597 high bay
Fire Extinguishers	Portable (A-B-C)	By personnel doors on the east, south, and west walls
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the high- bay in Building 6597
	Manually-operated fire suppression system (Halon replacement)	Hot Cell
	Sprinkler head	Under fume hood
	Branch line from the Building 6597 sprinkler system	Temporary Room
	Water supplied by fire hydrant	One hydrant, location shown on Figure 9

KAFB Kirtland Air Force Base

Table 4
Auxiliary Hot Cell Facility, Emergency Coordinator List

April 16, 2003November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	John Garcia Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-3538 (office) (505) 540-5194 (pager)	(505) 243-5914
First Alternate	Don Hanson Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 844-6969- (office) (505) 530-0409 (pager)	(505) 286-2364

One or more of these personnel are routinely available during normal work hours (8:00 am to 4:30 pm, Monday through Friday).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, [6-14-0010-1-03]. General closure information applicable to all RCRA-regulated Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the SNL/NM General Part B. The site-wide Closure pPlan in Appendix F includes a description of the SNL/NM facility,; waste descriptions,; closure performance standards,; general closure methods,; a sampling and analysis plan (SAP), a general closure schedule,; procedures for amendment of the Closure pPlan,; closure certification and reportletter,; and survey plat, and post-closure requirements. Unit-specific information for closure of the AHCF is included in this section.

7.1 Unit Description

Sandia/DOE use tThe Auxiliary Hot Cell Facility (AHCF) is located in the northeast (high bay) part of Building 6597 in TA-V at SNL/NM and is used to repackage, store, and treat RCRA-regulated wastes. The AHCF is located in the northeast (high bay) part of Building 6597 (see Figure 11) in TA-V at SNL/NM. Building 6597 is a concrete masonry unit building. The AHCF includes five four designated WMAs within the high bay of Building 6597: the hot cell; the work area near the hot cell (including the fume hood); the storage silos; and a container storage area:

- The hot cell is constructed of precast concrete and is lined with a stainless steel lining. A permanent shield wall extends north of the cell. The cell is used for repackaging and treatment.

- The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Waste management activities in the work area include storage and treatment and may require the use of a temporary room. The floor of the work area is coated with an epoxy-based chemical-resistant coating that forms a continuous protective barrier over the concrete floor. The work area includes a 6-ft-wide walk-in fume hood, which is also used for storage and treatment of waste in containers. The fume hood is equipped with a negative-pressure ventilation system. A flexible exhaust hose can be attached to this system, allowing localized negative-pressure ventilation from the work area. Air flow from the ventilation system passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filter train effectively removes particulates entrained in the air flow.

- A 6-ft-wide walk-in fume hood, located north and east of the hot cell, can be used for storage and treatment.

- Eight floor silos (six in the work area and two in the hot cell) can be used for storage. Each silo is constructed of concrete and lined with a removable welded stainless-steel sleeve.

- Containers of RCRA-regulated waste may also be stored in the southern half of the high bay. The footprint of the storage area will vary, depending on the quantity and

configuration of waste containers (e.g., containers may also be stored in the northwest portion of the high bay). The floor of the storage area is coated with an epoxy-based chemical-resistant coating that forms a continuous protective barrier over the concrete floor. The high bay area of building 6597 is also equipped with a system of floor trenches covered with steel plates or grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum total inventoryvolume of RCRA-regulated waste in storage at any time at the AHCF is estimated at 6,9763,646 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste inventory volume is broken down as follows:

Building 6597 hot cell	900 gallons
Building 6597 work area	1,100 gallons
Building 6597 container storage areas:	32,520 gallons
Building 6597 storage silos:	1,456 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 in the site-wide closure planAppendix F of the SNL/NM General Part B, closure activities specified in this plan assume the following conditions were met during the operational life of the AHCF:

- RCRA-regulated Wwaste handling and treatment activities that involvedding the opening of waste containers of RCRA-regulated waste were confined to the interiors of the AHCF WMAs. If contamination occurred, it would have been confined to those areas.

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during treatment activities, they would be only be present in the system up to the first filter.

- Enclosed WMAs (e.g. hot cell and floor silos) are considered independently of other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- Steel plates over floor trenches were moved only as needed for maintenance. RCRA-regulated wastes or hazardous waste constituents are not present in any section of floor trench that has been covered with steel plates unless there has been a release of RCRA-regulated wastes into that section of trench.

- Covers to each silo have been opened only as needed for storage operations. RCRA-regulated wastes or hazardous waste constituents are not present in each silo unless there has been a release of RCRA-regulated wastes into that silo.

- The container storage area occupied the entire south half of the high bay, and containers were occasionally stored in the northwest portion of the high bay.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the high bay where wastes were managed.

- The interior walls and floors in the high bayof WMAs waswere maintained to retain itstheir integrity by following established maintenance and inspection procedures, and breaches of protective coatings did not occur, and a small amount of soil will be present on the floor due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the AHCF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- The floor of the hot cell will be visually examined for evidence of deterioration and releases. The floor will be decontaminated by washing, as described in Section F.5 of the site-wide plan.

- Equipment within the work area will be evaluated to determine whether it is more effective to remove it or decontaminate it. Items that are most likely to be removed include local exhaust systems (up to the first filter), filters, and portable equipment. Items that are most likely to be decontaminated include the interior of the fume hood. The floor of the work area will be decontaminated by sweeping and washing, as described in Section F.5 of the site-wide plan.

- The liners of the silos will be visually examined for evidence of deterioration and releases. The silos are isolated from the rest of the WMAs at the AHCF. Waste management activities in the silos do not include opening, repackaging, or otherwise handling RCRA-regulated waste in a manner that could cause releases of waste or hazardous waste constituents. Therefore, the silos are not contaminated unless there is visual evidence or documentation indicating a release or conditions that could have lead to a release of RCRA-regulated wastes or hazardous waste constituents.

- The container storage area will be decontaminated by sweeping and washing, as described in Section F.5 of the site-wide plan.

7.4.2 Closure Schedule

Section F.7 of the site-wide Cclosure Pplan in Appendix F provides a timeline for closure activities applicable to all RCRA-regulatedpermitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the AHCF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the AHCF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide Cclosure Pplan in Appendix F presents general sample collection equipment and techniques applicable to all RCRA-regulated waste management Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the AHCF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure standardscriteria;, QA and quality control /[QC] procedures, etc.) regarding RCRA closure of the AHCF.

7.5.1 Project DescriptionSampling and Analysis Scope

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and interior walls of each of the five four WMAs at the AHCF (described in Section 7.1). Initial wipeAll of the samples will be taken analyzed to verify that stored RCRA-regulated wastes have not contaminated the WMAs. The wipe samples will be analyzed fordetermine concentrations of a set of indicator parameterscompounds selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator compoundsparameters and the applicable criteria for clean closure are identified in Tables 5 and 6, and the rationale for their selection is presented in Section 7.5.3. If initial sampling confirms the absence of contamination in the structures, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or those areas will be decontaminated and re-sampled to verify they have been cleaned, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.

~~This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describes the indicator compound levels that will be used to verify that clean closure has been achieved.~~

Table 5
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material in the work area and container storage area (representative of material removed from entire floor surface)	Barium Cadmium Chromium Lead	130 ppm <1 ppm 17.3 ppm 21.4 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Barium Cadmium Chromium Lead	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the AHCF due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in floor sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 6
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Number of Grids	Samples Per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Hot Cell	1	4	Barium Cadmium Chromium Lead	Evaluate with respect to concentrations in pre-wash water
Work Area	1	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Fume Hood (interior)	1	4	Same as above	Evaluate with respect to concentrations in pre-wash water
Container Storage Area	3	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water

[a] One sample from each pair of floor wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the AHCF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA identified in Table 6 will be swept as noted and a sample of the composited floor sweepings from each respective WMA will be collected for analysis.

Two samples of wash water and two samples of used decontamination rinse water will be collected from each WMA identified in Table 6. Used wash water will be contained in temporary berms or other containment devices, sampled, and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.~~Selection of sample locations on the wall and floor surfaces in the AHCF WMAs will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor and wall surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at locations of stains and discolorations on surfaces, if any are identified).~~

~~Random sample locations have been identified in this SAP, whereas additional biased sample locations will be identified at the time of closure. Table 5 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, floor and wall surfaces in each of the AHCF WMAs were stratified into five general sample areas (floor, north wall, south wall, east wall, and west wall). Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

~~RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each floor and wall grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 6 provides an example of how these random sample coordinates are located, and Figure 11 shows the sampling grids for each AHCF WMA.~~

~~The entire floor surfaces will be gridded for random sampling, and the wall grids will be limited to a height of 5 feet above the floor surface, which includes the areas most likely to have been affected by waste management activities in the Unit.~~

~~Table 5~~
~~Manzano Storage Bunkers~~
~~Summary of Random Sampling Program~~

~~WMA~~	~~Grids~~[a]	~~Wall Samples per Grid~~	~~Floor Samples per Grid~~	~~Indicator Parameters~~[b]	~~Closure Standard~~[c] ~~($\mu g/m^2$)~~
~~Work Area~~	~~WA_1~~	~~2~~	~~1~~	~~Arsenic~~	~~387~~
				~~Barium~~	~~109,752~~
				~~Cadmium~~	~~1,557~~
				~~Chromium~~	~~4,704~~
				~~Lead~~	~~270~~
				~~Mercury~~	~~157~~
				~~Selenium~~	~~7,839~~
				~~Silver~~	~~7,839~~
	~~WA_2~~	~~3~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Hot Cell~~	~~HC~~	~~4~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Fume Hood~~	~~FH~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~

~~[a] Refer to Figure 11 for locations of sample grids.~~

~~[b] RCRA toxicity characteristic metals have been selected as indicator constituents to demonstrate clean closure at the AHCF; see Section 7.5.3 for additional information.~~

~~[c] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.~~

~~Table 6~~
~~Auxiliary Hot Cell Facility~~
~~Example Random Sample Locations~~

~~WMA~~	~~Grid~~	~~Xmin, Xmax (inches)~~	~~Ymin, Ymax (inches)~~	~~Random X-coordinate (inches)~~[a]	~~Random Y-coordinate (inches)~~[a]
~~Work Area~~	~~WA_1 (Floor)~~	~~1 – 672~~	~~1 – 576~~	~~509~~	~~5293~~
	~~WA_1 (N. Wall)~~	~~1 – 672~~	~~1 – 60~~	~~22~~	~~398~~
	~~WA_1 (W. Wall)~~[b]	~~1 – 576~~	~~1 – 60~~	~~43~~	~~485~~

~~[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.~~
~~[b] As shown on Figure 11, there are no east or south walls in Grid WA_1 of the Work Area in the AHCF.~~

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA identified in Table 6 prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 5.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 5 and 6. ~~The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.~~

~~Dry wipe sampling is proposed for this project, and will be conducted in accordance with the following procedures:~~

- ~~Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 6. Using these coordinates as the center point, delineate a 1 square foot area around this point.~~

- ~~Don clean, dry, lightweight cotton gloves.~~

- ~~Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.~~

- ~~Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.~~

~~This process will be repeated until all floor and wall grids have been wipe sampled.~~

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.The following equipment will be required for the wipe sampling to be conducted at the AHCF:

- Lightweight, white, cotton gloves (clean-room type)
- Stainless steel forceps or tweezers
- Filter paper wipes (Whatman® No. 40, 4.25 cm diameter, or equivalent)
- A 1 square foot template made from inert material (e.g., Teflon, etc.)
- Precleaned 4 oz. or 8 oz. wide-mouth glass jars with screw-top lids
- Insulated shipping cooler with frozen, gel-type cooling material and cushioning packaging
- Sample collection and custody forms, sample numbers, labels, chain of custody forms, etc.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) willis not be required for the wipe sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5Sample Documentation and Custody

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Preservation method
- Analysis required

A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.

7.5.2.67.5.2.5 *Sample Identification*

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, west wall, etc.), the grid identifiernumber (if applicable), the sample type (random or biasse.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-AHCF-WA1-FL-RANDRINSE-01 would indicate the random filtered rinse water sample taken from the water used to rinse the floor of Grid WA1the work area in the AHCF.

7.5.2.77.5.2.6 *Sample Preservation and Holding Time*

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., . For example, the recommended maximum holding time for metals analysis is 6 months180 days from sample collection until extraction).

7.5.2.8*Waste Management*

Minimal quantities of waste will be generated through the wipe sampling procedures at the AHCF, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the AHCF will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

7.5.3 Demonstration of Clean Closure

A subset of RCRA hazardous waste toxicity characteristic metals hasve been selected for use as indicator parameters to demonstrate clean closure at the AHCF, as these constituents are present in many of the wastes were commonly stored or treated in the bunkersUnit. Other wastes stored or treated in the AHCF typically were are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005 waste codes). Wipe sSampling floor sweepings (soil) or decontamination wash and rinse watersof concrete and metal surfaces is of limited valuenot a valid method for determining the presence of D001, D002, or D003 waste residuals. In addition, and given the their volatility, of F001-F005 constituents, they would not likely be present on building the floor or interior fume hood surfaces even if they these constituents had been released in the past. If residual contamination is present on the floor or interior fume hood and wall surfaces of the AHCF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, wipe samples will be analyzed for the subset of RCRA hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B/7471A, or an equivalent method.

Results from initial wipe sampling of the floor and walls in the AHCF will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If wipe sampling results for the selected indicator parameters are lower than the associated cleanup level, as presented in Table 5, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria. Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the wipe sample resultsconcentrations of indicator parameters are substantially elevatedgreater than the cleanup level, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.32.1 of the site-wide Cclosure Pplan.

7.5.4 Quality Control

Quality control (QC) for wipe sampling and analysis at the AHCF will be implemented as described in Section F.6 of the site-wide closure plan. to ensure that the data collected provides useful information to document clean closure of the Unit. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.

The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation

for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:

- Blank Spike Analysis—The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameters (RCRA metals) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.

- Method Blank—An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures. Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.Initial data reduction and validation will be done by the laboratory contracted to analyze the wipe samples. The laboratory will report the data in accordance with their internal quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.

Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.

7.6 Decontamination and Verification Procedures

Section F.5.32 of the site-wide Cclosure Pplan in Appendix F presents general decontamination and verification procedures applicable to all RCRA-regulated waste management Units at the SNL/NM facility. Prior to closure, this Unit-specific Closure Pplan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific Closure Pplan will be submitted to NMED for approval prior to initiation of closure activities at the AHCF.

8.0 TREATMENT PLAN

Treatment operations for RCRA-regulated wastes treated at the AHCF are described in this section

The following treatment technologies may be used to treat RCRA-regulated wastes at the AHCF:

- Chemical deactivation,
- Stabilization,
- Macroencapsulation, and
- Physical treatment., and
- Stabilization.

Sandia/DOE may use each technology to treat any of the wastes in the General Part A that include the particular technology in the process description. The waste management areas at the AHCF that are used for the treatment of RCRA-regulated wastes are include the hHot cCell, the Fume Hood, and the wWork aArea (including the fume hood), as described below.

Because treatment at the AHCF will be conducted in containers, it is not subject to the miscellaneous unit and environmental performance standards in 20 NMAC 4.1.500/40 CFR 264, Subpart X [6-14-0010-1-03]. Treatment effectiveness for each waste stream is discussed in Section 8.32.

8.1 Treatment Operations

Waste treatment is performed at the AHCF for one or more of the following reasons:

- Tto meet land disposal restrictions (LDRs);
- to allow for the safe storage of the waste; and/or
- Tto meet treatment, storage, or disposal facility (TSDF) requirements.

All of the treatment at the AHCF will be batch treatment performed on single packages of waste (each package is one 55-gallon drum or less, or a single item that may be larger than a drumpackage that can be placed in one of the silos). Each type of treatment will be performed on batches of 500 pounds of waste or less, with the exception of physical treatment, which may occasionally involve very large, heavy items. Liquid wastes will be treated in batches of 5560 gallons or less.

Waste treatment may generate secondary waste streams (treatment residues). RCRA-regulated treatment residues may undergo additional on-site treatment to meet LDRs and/or be sent to an appropriate off-site TSDF.

The waste treatment processes described in this section are effective in addressing hazardousRCRA-regulated characteristics in RCRA-regulated wastes, including the following:

- Solid items exhibiting the hazardous wasteRCRA-regulated characteristics of ignitability or reactivity may be chemically deactivated to eliminate the characteristic(s).
- Liquid waste exhibiting the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity may be chemically deactivated to remove the RCRA-regulated characteristic(s).
- Liquid wastes and particulates containing hazardous waste toxicity characteristic metals (excluding elemental mercury and high mercury subcategories) may be stabilized to reduce or eliminate the leaching potential of the hazardous waste constituents.
- Debris and wastes containing RCRA-regulated constituents hazardous waste toxicity characteristic metals (excluding elemental and high mercury subcategories defined in 20 NMAC 4.1.800/40 CFR 268) may be macroencapsulated to reduce or eliminate the leaching potential of the hazardous waste constituent(s).
- Solid items with hazardous constituents may be physically separated from larger items, and the size of individual pieces may be reduced.

Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes may or may not require further management as hazardous wastes, as discussed in Appendix B, Section B.2.5. In accordance with LDRs, the following are managed as RCRA-regulated waste: treatment residue derived from the treatment of listed RCRA-regulated wastes, treated waste containing listed RCRA-regulated waste, and treated waste which continues to exhibit RCRA-regulated waste characteristics and/or does not meet treatment standards for underlying hazardous constituents.

Each waste treatment technology or process listed above is described in the following sections.

8.1.1 Chemical Deactivation

Sandia/DOE perform chemical deactivation in containers in the work area (including the fume hood) at the AHCF. The containers vary in size depending on the quantity of waste to be treated, and include laboratory glassware, 5-gallon buckets, and 55-gallon drums.

Chemical deactivation refers to a number of chemical processes that can eliminate the hazardousRCRA-regulated waste characteristics of ignitability, corrosivity, and/or reactivity. Deactivation can be accomplished by several technologies (e.g., neutralization, or chemical oxidation, or stabilization). However, the intent of this section is to identify and describe specific methods or treatment trains which may be used at the AHCF to deactivate ignitable wastes defined in 20 NMAC 4.1.200/40 CFR 261.21(a)(2) and (4) [6-14-0010-1-03], corrosive and reactive wastes defined in 20 NMAC 4.1.200/40 CFR 261.23 [6-14-0010-1-03]. Deactivation may or may not result in a final waste form, depending on the process, and may be used as the first in a series of treatment steps.

Deactivation processes are conducted under carefully controlled conditions so that RCRA-regulated waste with the characteristic of reactivity is allowed to react in a slow, nonviolent manner. Allowing the reactive potential of the waste to be dissipated in this manner reduces or eliminates the reactive characteristic of the waste. Deactivation of reactive wastes is typically conducted in small batches under laboratory conditions such that process control can be easily maintained.

- Hydrides, deuterides, and tritides are deactivated by slow addition to an ice water bath.
- Deactivation of water reactive metals such as elemental sodium and lithium involves the slow and controlled addition of an appropriate alcohol/water solution. Alcohol/water addition is maintained until the water reactive potential of the waste has been eliminated.
- Deactivation of pyrophoric metal powders and particulates may be achieved by mixing waste in a portland cement matrix.
- Water-soluble oxidizers in particulate form are slowly dissolved in water to deactivate them as the first step in the treatment process. The resulting solution may undergo further treatment (e.g., neutralization and stabilization).
- Water-soluble concentrated liquid oxidizers such as hydrogen peroxide may be diluted with water in a controlled manner to make them safer to handle before deactivation with an appropriate chemical agent such as iron filings.

Chemical deactivation to remove the characteristic of corrosivity is the process of removing excess acidity or alkalinity from an aqueous liquid waste. Other uses may include pH adjustment to facilitate subsequent treatment; such pretreatment through deactivation may be necessary to prevent corrosive damage to equipment, deter undesirable reactions, and preclude the formation of unwanted byproducts.

Reagents added to achieve a desired pH are combined with liquid waste inside a mixing vessel or directly in the waste container. Common deactivating reagents include, but are not limited to, caustic soda, lime, phosphine, calcium or sodium carbonate, sodium hydroxide, and limestone for acid wastes; and hydrochloric, phosphoric, or nitric acids for alkaline wastes. The selection of reagents is dependent on the quantity of reagent required, cost, availability, and the potential byproduct(s). These deactivation processes are conducted under carefully controlled conditions in which the reagent is added to the waste slowly and mixed thoroughly. This allows the reaction to proceed in a nonviolent manner and allows the energy to be dissipated effectively. Ice may be used if needed to cool the mixture during the reaction. In the case of reactions that are expected to be strongly exothermic, wastes may be treated in small batches under laboratory conditions (similar to the deactivation of reactive wastes) such that process control can be easily maintained.

8.1.48.1.2 Stabilization

Sandia/DOE perform stabilization in containers in the work area, (including the fume hood) at the AHCF. Stabilization is a process of binding hazardous wasteRCRA-regulated metals so that the metals become chemically part of the matrix or are physically bound within the matrix. The

primary use of stabilization is to immobilize toxicity characteristic metals but many stabilization agents also eliminate free liquids. Typical waste forms suitable for stabilization include liquids, soils, and particulate-type wastes.

Process equipment for mixing waste and binder materials depends on the type of reagents used and the volume of waste to be treated. In-drum mixing is typically used for large volume waste quantitiesstreams. Once waste and binder have been thoroughly mixed and placed in a container, the mass is allowed to cure and/or set. Smaller batches may be mixed by hand and allowed to cure in smaller containers (e.g., 5-gallon pails, and tubs and trays of various sizes).

Development of appropriate formulas is waste specific. Stabilization agents for toxic metals may include portland cement, pozzolansic, thermoplastics, organic polymers, and clays. However, other waste forms may require proprietary reagents that are available for specific applications. Additional reagents may be added to reduce contaminant leachability, reduce cure and/or set time, and increase strength.

Waste characteristics that are important to the success of the stabilization process for liquids may include volume percent of water, oil, solvents, or other organics; pH; and hazardousRCRA-regulated waste constituents. Waste characterization data are used to determine whether the waste is amenable to stabilization, any necessary pretreatment requirements, and the appropriate binding agent.

Once stabilization is selected, the binding agent is identified based on chemical compatibility with the waste form and contaminants present. Pretreatment may be required to assure compatibility between the waste and the binding agent (e.g., neutralization of liquid wastes to an acceptable pH range of 5.0 to 11.0). Once the proper binding agent(s) have been identified, bench-scale testing is performed to determine optimum amounts of each agent. In the case of low volume waste streams (e.g., less than approximately 0.26 gallons), bench-scale testing may not be practical and treatment is performed without bench-scale testing using the manufacturer's suggested quantities or by estimating binding agent quantities from previous experience. The stabilization process is performed by combining the predetermined quantities of binding agent(s) with the waste and thoroughly mixing, if appropriate. The resulting mixture is staged to allow an appropriate cure time.

8.1.28.1.3 Macroencapsulation

Sandia/DOE perform macroencapsulation in containers in the work area (including the fume hood) and/or the hot cell at the AHCF. Macroencapsulation is generally applicable to debris, whereas stabilization (see Section 8.1.24) is generally applicable to liquids, sludges, and particulate-type wastes. Macroencapsulation is the process of encasing waste within a polymer coating or concrete, or within a jacket of inert inorganic materials. The primary use of macroencapsulation is to immobilize wastes such as debris-type solids containing hazardous wasteRCRA-regulated constituents by surrounding the waste material with a leach-resistant coating.

Sandia/DOE pPerforming macroencapsulation using involves one of three processes: coating waste with polymer agents within a mold or

- Eencasing the waste in concrete, typically within a larger container that serves as a mold for the concrete.

- Coating the waste with polymer agents within a mold. Polymers typically used for macroencapsulation include, but are not limited to, asphalt, polyethylene, thermosetting plastics, and resins that can be polymerized under ambient temperatures in the presence of a catalyst. Equipment used for macroencapsulation may include molds, polymer extrusion equipment, and resin mixing equipment. In-drum macroencapsulation may also be performed with the drum acting as the mold. Temperature control of polymer macroencapsulation processes is critical and carefully maintained to assure that adequate coating occurs.

- Placing the waste inside a container made of an inert resin such as polyethylene. After the wastes and inert void-filler materials are placed in the container, the resin is heated to seal the container and lid (e.g. using a resistance-heated wire system embedded in the container lid). The container may also include an outer metal shell to provide additional structural strength.

8.1.38.1.4 Physical Treatment

Sandia/DOE perform physical treatment (volume reduction through separation) in the work area (including the fume hood) and/or the hot cell at the AHCF. The treatment includes:

- consists of Rreducing waste volume by using commercially available tools (e.g., hammers, screwdrivers, wrenches, pliers, saws, drills, cutters, etc.) to separate items with hazardous wasteRCRA-regulated constituents from larger items or from each other, including removal of coating and filler materials. In some cases, the RCRA-regulated waste item may undergo further physical treatment or treatment in containers.

- Reducing the size of waste items by using tools (e.g. mallets, cutters, etc.) to crush or cut items into smaller pieces. The pieces may undergo further treatment in containers.

8.1.58.2 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Most of the RCRA-regulated wastes treated at the AHCF are inorganic and are not expected to generate emissions during treatment. Unit personnel perform chemical reactions that could generate emissions (deactivation and stabilization) in a controlled manner as described above to further minimizes potential air emissions. Treatment operations that may generate air emissions of gases, vapors, or particulates will be conducted in a controlled manner within the fume hood if possible. Air flow from the fume hood passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The filters do not remove organic constituents entrained in the air flow. AHCF personnel employ the practices described in Section 8.2 of the General Part B to prevent releases of organic constituents to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

The AHCF treatment operations do not employ processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA.

8.2.2 Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [6-14-0010-1-03]. Equipment used in such service at the AHCF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [6-14-0010-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [6-14-0010-1-03]. The equipment location will be noted in the AHCF records. Equipment use will also be noted in the records.

8.2.3 Subpart CC

Unit personnel follow the practices described in Section 8.2 of the SNL/NM General Part B. Unit personnel do not perform any treatment subject to Container Level 3 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]).

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [6-14-0010-1-03].

8.28.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

As required in 20 NMAC 4.1.900/40 CFR 270.23(d) [6-14-0010-1-03], Sandia/DOE evaluate treatment effectiveness by appropriate methods for each batch of waste treatedconsiderations and demonstrations are provided for the treatment technologies used or proposed for use at the AHCFRMWMF. In many cases (e.g. stabilization), Unit personnel treat small samples of a batch of waste using a single agent in various proportions or using various agents to determine which is most effective. That process is then used in treating the rest of the waste. Treatment effectiveness will be verified through Characterization evaluation of the treated waste is described in accordance with Appendix B (Section B.2.53.3.2) of the SNL/NM General Part B.

8.3.1 Chemical Deactivation

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for completeness of chemical reaction for solid items that were treated to remove the characteristic of reactivity.
- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Check whether treated waste is an oxidizer as defined in 40 CFR 173.151.
- Visual check for liquids that were treated to remove the characteristic of reactivity.
- Fingerprint chemical check for the presence of sulfides and cyanides if their presence caused the waste to be reactive.
- Fingerprint check for pH of liquids that were treated to remove the characteristic of corrosivity.

8.3.2 Stabilization

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for the presence of free liquids.
- Paint filter test to determine whether free liquids are present if the treated waste is amorphous and may contain some liquids.
- Analysis of one or more samples of the treated waste using the TCLP for hazardous waste toxicity characteristic metals. If the stabilization is intended to meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40, the analysis will include underlying hazardous constituents as described in Appendix B.

8.3.3 Macroencapsulation

Unit personnel visually check each macroencapsulated item to verify that it is completely encased in the inert resin or concrete.

8.3.4 Physical Treatment

Unit personnel check treatment effectiveness using one of more of the following methods (depending on the goal of the treatment performed):

- Visual check that item(s) with hazardous waste constituents has(ve) been completely separated from other item(s).
- Visual check that pieces are the desired size.

9.0 REFERENCES

DHHS, see US Department of Health and Human Services

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 2004~~3~~, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 7~~5~~.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

Sandia National Laboratories/New Mexico
Manzano Storage Bunkers
Part B Permit Application

Module VI

Revision 4~~3~~.0

November 200~~3~~4

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... MSB-iii
LIST OF FIGURES ..... MSB-iv
ACRONYMS AND ABBREVIATIONS ..... MSB-v
1.0 GENERAL UNIT OPERATIONS MSB-2
1.1 Designated Waste Management Areas MSB-2
1.1.1 Type B Bunker (37034) MSB-3
1.1.2 Type C Bunker (37118) MSB-3
1.1.3 Type D Bunkers (37045, 37055, and 37057) MSB-3
1.2 Unit Operations MSB-34
1.2.1 Operation of Containment Systems MSB-4
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes MSB-4
1.2.3 Preparedness and Prevention MSB-5
1.2.3.1 Required Equipment MSB-5
1.2.3.2 Testing and Maintenance of Equipment MSB-5
1.2.3.3 Access to Communications or Alarm Systems MSB-5
1.2.4 Hazards Prevention MSB-5
1.2.4.1 Preventing Hazards in Unloading MSB-5
1.2.4.2 Preventing Runoff or Flooding MSB-6
1.2.4.3 Preventing Contamination of Water Supplies MSB-6
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages MSB-6
1.2.4.5 Preventing Undue Exposure MSB-7
1.2.4.6 Preventing Releases to the Atmosphere MSB-7
1.3 Container Storage Practices MSB-8
1.3.1 Container Types and Labeling MSB-8
1.3.2 Container Handling MSB-8
1.3.2.1 Condition of Containers MSB-8
1.3.2.2 Aisle Space and Storage Configuration MSB-8
1.3.2.3 Capability of Waste with containers MSB-8
1.3.2.4 Presence of Liquids in Containers MSB-9
2.0 UNIT DESCRIPTION AND INFORMATION MSB-10
2.1 Security Procedures and Equipment MSB-10
2.1.1 Barriers and Means to Control Entry MSB-10
2.1.2 Warning Signs MSB-11
2.2 Traffic Pattern, Volume, and Controls MSB-11
2.2.1 Traffic Patterns MSB-11
2.2.2 Traffic Volumes MSB-11
2.2.3 Traffic Control Signals MSB-11
2.3 Unit Location Information MSB-12
2.3.1 Seismic Standard MSB-12
2.3.2 Floodplain Standard MSB-12
2.4 Topographic Maps MSB-12
2.5 Groundwater Monitoring MSB-13

TABLE OF CONTENTS (Concluded)

3.0 WASTE ANALYSIS PLAN MSB-14
4.0 INSPECTION PLAN MSB-15
5.0 PERSONNEL TRAINING MSB-18
6.0 CONTINGENCY PLAN MSB-19
7.0 CLOSURE PLAN MSB-22
7.1 Unit Description MSB-22
7.2 Estimate of Maximum Waste in Storage MSB-22
7.3 Closure Conditions MSB-22
7.4 Closure Activities and Schedule MSB-23
7.4.1 Closure Activities MSB-23
7.4.2 Closure Schedule MSB-23
7.5 Sampling and Analysis Plan MSB-23
7.5.1 Sampling and Analysis Scope MSB-23
7.5.2 Sampling Methodology MSB-25
7.5.2.1 Sample Locations MSB-25
7.5.2.2 Sample Collection MSB-27
7.5.2.3 Sampling Equipment MSB-28
7.5.2.4 Sample Equipment Decontamination MSB-29
7.5.2.5 Sample Identification MSB-30
7.5.2.6 Sample Preservation and Holding Time MSB-30
7.5.3 Demonstration of Clean Closure MSB-30
7.5.4 Quality Control MSB-31
7.5.5 Data Management and Reporting MSB-3132
7.6 Decontamination and Verification Procedures MSB-32
8.0 TREATMENT PLAN MSB-33
9.0 REFERENCES MSB-34

LIST OF TABLES

Table No.	Title
1	Manzano Storage Bunker Inspection Criteria and Frequency
2	Manzano Storage Bunkers Emergency Equipment and Locations
3	Manzano Storage Bunkers Facility Emergency Coordinator List
4	Manzano Storage Bunkers, Summary of Random Sampling Program
5	Manzano Storage Bunkers, Example Random Sample Locations

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Manzano Storage Bunkers at Sandia National Laboratories/New Mexico
2	Location of the Manzano Storage Bunkers at Manzano Base
3	Manzano Storage Bunkers, Type B, Bunker 37034
4	Manzano Storage Bunkers, Type C, Bunker 37118
5	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, 37057
6	Manzano Storage Bunkers, Traffic Routes, and Controls
7	Topographic Map
8	Manzano Storage Bunkers, Access Control Figures
9	Manzano Storage Bunkers, Drainage Control Features
10	Manzano Storage Bunkers, Evacuation Routes
11	Emergency Response and Access Information in the Vicinity of the Manzano Storage Bunkers
12	Emergency Response and Access Information within the Manzano Storage Bunkers
13	Manzano Storage Bunkers, Type B, Bunker 37034, Random Sampling Grids
14	Manzano Storage Bunkers, Type C, Bunker 37118, Random Sampling Grids
15	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, 37057, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot/feet
ft^2	square foot/feet
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
MSB	Manzano Storage Bunkers
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	Technical Area
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO
MANZANO STORAGE BUNKERS
PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Manzano Storage Bunkers (MSB) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003June 14, 2000 [10-1-036-14-00], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage operations requiring a permit at the MSB. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application", hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the SNL/NM General Part B, and in the appendices to the General Part B meet the applicable requirements for the MSB that are specified in 20 NMAC 4.1.500/40 CFR 264 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270 [6-14-0010-1-03].

Sandia/DOE also prepared a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 75.0" (SNL/NM, 20043), hereinafter referred to as the SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this MSB Part B Permit Application.

In the General Part A, the General Part B, its appendices. and this module, a Unit to be permitted may sometimes be referred to as a "facility." The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [6-14-0010-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The MSB are a set of five units, each with approximately 1600 to 2100 square feet of space. They are located in the Manzano Area on Kirtland Air Force Base (KAFB) and are used for storage of RCRA-regulated wastes in containers. The MSB are owned by KAFB and leased to the DOE. All of the RCRA-regulated wastes listed in the General Part A may be managed at the MSB. Sandia/DOE currently operate the MSB under interim status in accordance with the terms of the most recent Part A submitted to approved by the New Mexico Environment Department (NMED) (November 29, 2004May 2002) and the most recent Part B permit request submitted to NMED (November 29, 2004April 16, 2003).

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the MSB waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable hazardousRCRA-regulated waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [6-14-0010-1-03], and 20 NMAC 4.1.900/ 40 CFR 270.14 and 270.15 [6-14-0010-1-03].

1.1 Designated Waste Management Areas

The location of the MSB at SNL/NM is shown on Figures 1 and 2. The MSB include five Units: Bunkers 37034, 37045, 37055, 37057, and 37118 (Figure 2). There are five5 designated waste management areas (one in each bunker) as shown in Figures 3, 4, and 5.

In each MSB bunker, containers holding RCRA-regulated liquid wastes are stored on portable spill pallets orand pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives and other liquids. The containers of liquids (typically 5- to 30-gallon capacity) are stored on the grating. Any liquids released from the containers drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [6-14-0010-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3).

The pallets come in various sizes and capacities; each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

The containers are stored indoors and are protected from precipitation by the bunkers, and by the slope of the concrete paved surface outside the door that directs storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(4).

The MSB are constructed of concrete (walls, roof, and floor) and are covered by earthen materials. The walls and roof of each bunker are rounded. There are three types of bunkers: Type B (37034); Type C (37118); and Type D (37045, 37055, and 37057). The following sections provide descriptions of specific bunker storage structures, locations, and capacities.

1.1.1 Type B Bunker (37034)

Type B bunkers consist of an access tunnel leading to a main chamber that is used for storage of RCRA-regulated wastes. Figure 3 provides a typical floor plan for a Type B bunker. The Type B access tunnel is approximately 20 feet (ft) long, 12 ft wide, and 12.5 ft high. The main chamber is approximately 81 ft long, 26.5 ft wide, and 12.8 ft high. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface above and around each bunker is sloped so water drains away from the bunker. Access to the WMA of each bunker is through two sets of double doors that are 9 ft high and 9 ft wide. One set is at the entrance to the access tunnel, and the other set is at the entrance to the main chamber.

Based on the available floor space (2,100 square feet [ft^2]) in Bunker 37034, it can hold a maximum of 25,080 gallons of RCRA-regulated wastes.

1.1.2 Type C Bunker (37118)

Type C bunkers do not have an access tunnel and consist entirely of a main chamber used for storage of RCRA-regulated wastes. Figure 4 is a typical floor plan of a Type C bunker. The main chamber is approximately 80 ft long, 27 ft wide, and 12.8 ft high. A 6-in. drain tile is located outside the bunker perimeter. Access to the main chamber is through a set of double doors 8 ft wide and 9.5 ft high. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface over and around each bunker is sloped so water drains away from the bunker.

Based on the available floor space (approximately 2,100 ft^2) in Bunker 37118, it can hold a maximum of 25,080 gallons of RCRA-regulated wastes.

1.1.3 Type D Bunkers (37045, 37055, and 37057)

Type D bunkers consist of an access tunnel leading to a main chamber. Only the main chamber is used for storage of RCRA-regulated wastes. Figure 5 is a typical floor plan of a Type D bunker. Type D access tunnels vary in length from 76 feet to 110 feet and are 9 ft wide and 11 to 12 ft high. The main chamber in each bunker is approximately 61 ft long, 26.5 ft wide, and 12.5 ft high. Access to the WMA of each bunker is through two sets of double doors that are 9 ft high and 9 ft wide. One set is at the entrance to the access tunnel, and the other set is at the entrance to the main chamber. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface over and around each bunker is sloped so water drains away from each bunker.

Based on the available floor space (1,600 ft^2) in each of the Type D bunkers, each bunker can hold a maximum of 18,480 gallons of RCRA-regulated wastes.

1.2 Unit Operations

The MSB WMAs are used to store any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers listed in the ~~SNL/NM~~ General Part A.

The MSB are not continuously occupied. All personnel sign in on a log upon entering each bunker and sign out when they leave. Waste handling personnel work in pairs and maintain contact with each other. All personnel are trained to check that everyone has signed out and exited the bunker before turning off the lights and closing and locking the doors.

Information regarding operations requiring a permit at of all RCRA-regulated Units at SNL/NM is included addressed in Section 1.1 of the SNL/NM General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.500/40 CFR 264.175[b][5]; 20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15[a] and [b])

Unit personnel begin taking action to evaluate and remove accumulated liquids in the spill pallets upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177; 20 NMAC 4.1.900/ 40 CFR 270.14[b][9] and 270.15[c] and [d])

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the MSB. Sources of ignition that may be present at the MSBRMWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the SNL/NM General Part B. Additional Unit-specific features, potential ignition and reaction sources, precautions, and practices include:

- Ignitable and reactive wastes are segregated from other wastes within each bunker. The containers are labeled as described in Section 1.2.1 of the General Part B. Unit personnel typically place a portable sign near the wastes, use prominent labels, or use another method to assist in to identifying them as ignitable and/or reactive. Water-reactive wastes are not routinely stored in the bunkers. If present, they are segregated from other wastes and their location identified clearly through the use of signs, labels, or some other method.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas, each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Containers are not routinely opened during storage at the bunkers, and RCRA-regulated wastes are not repackaged.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the MSB.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

The MSB are not equipped with automatic fire suppression systems. As noted in Table 2, fire-fighting services are provided by the KAFB fire department tanker trucks. Information on other required equipment located at the MSB is provided in Section 6.0 and Table 2 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the MSB is provided in Appendix C of the ~~SNL/NM~~ General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the MSB is provided in Section 1.1.3.3 of the ~~SNL/NM~~ General Part B and in Section 6.0 of this module. Personnel at the Unit typically maintain contact with the emergency coordinator and other ~~Radioactive and Mixed Waste Management Facility (RMWMF)~~ personnel at the existing Radioactive and Mixed Waste Management Facility or future Consolidated Waste Management Facility through 2-way radios or cellular phones.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the MSB to prevent hazards. Additional information applicable to the MSB and all other Units at SNL/NM is included in Section 1.1.4 of the ~~SNL/NM~~ General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

MSB personnel employ the practices described in Section 1.1.4.1 of the ~~SNL/NM~~ General Part B to prevent hazards in unloading. Loading and unloading activities take place on the paved areas immediately outside the bunkers. The surface is sloped gently away from the door, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Transport vehicles carry absorbent spill pillows/pigs and/or additional absorbent. The spill pillows will contain any spill or release of liquid wastes to the concrete surface immediately

adjacent to and in front of the bunker doors and prevent run-off to surrounding areas. Personnel will add the additional absorbent or pillows to the contained liquid and place the absorbed waste into appropriate containers as described in Section E.5 of the Site Wide Contingency Plan (Appendix E).

Containers are typically strapped together or tied down on a pallet before being moved. Containers are moved with a forklift from the storage areas through the access tunnels to the loading areas at each bunker. Containers may be moved with a drum dolly or hand truck within each bunker.

Waste handling personnel work in pairs at the Unit, and maintain contact with one another. Because the Unit is not routinely occupied, personnel are trained to be particularly aware of current and forecast weather conditions and other operations that could affect waste movement, and to exercise caution in operating equipment such as forklifts.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

Sheet-flow run-on of surface water from surrounding areas and runoff from the MSB are prevented from entering/leaving the WMAs by the design and construction of the bunkers. The MSB are constructed of concrete and covered by earthen materials. The slope of the earthen materials covering the bunkers prevents run-on of storm water or snow melt. The interior roof and side walls of each bunker are protected by a waterproof membrane. In Type B and Type C bunkers, a 6-ft drain tile is located on the exterior perimeter, so any water that percolates through the earthen fill is drained away from the bunkers. The drive at the front of each bunker is level or sloped slightly away from the bunker doors.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated waste~~s management activities~~ at the MSB will affect water supplies, as described in this section and in Section 1.1.4.3 of the ~~SNL/NM~~ General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/ 40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. RCRA-regulated waste handling~~management~~ activities at the MSB that are affected by ~~will be suspended in response to~~ equipment failures or~~f~~ power outages will be suspended in response to such outages~~affecting those WMAs~~.

Electrical power is not required for the safe operation of the MSB WMAs. Equipment and/or power failures will not result in a loss of ~~RCRA-regulated waste~~ containment for RCRA-regulated wastes.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

MSB personnel employ the practices described in Section 1.1.4.5 of the ~~SNL/NM~~ General Part B to prevent undue exposure.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

MSB personnel employ the practices described in Section 1.1.4.6 of the ~~SNL/NM~~ General Part B to prevent releases to the atmosphere during storage.

Subpart AA

MSB storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities at the MSB, Sandia/DOE do not manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [~~6-14-00~~10-1-03].

Subpart CC

MSB personnel employ the practices described in Section 1.1.4.6 of the ~~SNL/NM~~ General Part B to prevent releases to the atmosphere in accordance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the bunker WMAs.

Section B.5.3 of Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart CC [~~6-14-00~~10-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264 Subpart I)

Container storage practices applicable to the MSB are presented in the following sections.

1.3.1 Container Types and Labeling

MSB personnel use the containers types and labeling practices described in Section 1.2.1 of the ~~SNL/NM~~ General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

MSB personnel employ the container handling practices described in Section 1.2.2 of the ~~SNL/NM~~ General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the MSB is maintained as indicated in Section 1.2.2.1 of the ~~SNL/NM~~ General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

MSB personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the ~~SNL/NM~~ General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than two or three pallets high. Smaller containers may be stacked on a single pallet. Box-shaped containers may be stacked two high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

1.3.2.3 Capability of Waste with containers (20 NMAC 4.1.500/40 CFR 264.172)

MSB personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the ~~SNL/NM~~ General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

MSB personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the SNL/NM General Part B before storing containers in areas that are not equipped with secondary containment.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of the 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [6-14-0010-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [6-14-0010-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [6-14-0010-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [6-14-0010-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [6-14-0010-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [6-14-0010-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [6-14-0010-1-03]; 20 NMAC 4.1.500/40 CFR 264.90[a] [6-14-00 10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of SNL/NM the General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the MSB.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The doors of the individual bunkers are locked except when personnel are present. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the SNL/NM RCRA-regulated Units during non-operational hours.

Unit personnel have Sandia-issued badges. Individuals who do not have Sandia-issued badges are escorted. These procedures limit access to the MSB WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [6-14-0010-1-03].

The MSB are located within the Manzano Base area. The Manzano Base is surrounded by an 8-ft chain-link fence (Figures 1, 2, and 8). Entrance to the Manzano Base area, whether by

personnel or vehicles, is through one controlled gate. Manzano Base access control procedures are designed to assure that only properly authorized persons, vehicles, and property are allowed access to the bunkers.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The entrance to each bunker is posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from the paved access road approach to each bunker. Additional signs are not necessary because employees and visitors do not approach the bunkers from any other direction.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the SNL/NM General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the MSB include Wyoming Boulevard, and Pennsylvania Avenue as shown on Figure A-4 in Appendix A of the SNL/NM General Part B. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. The MSB are located approximately 1 mile east of the exit road leading to the entrance of TA-III and TA-V and at the end of Pennsylvania Avenue. Within Manzano Base, waste is transported to each bunker on 2-lane asphalt-paved roads (Figure 6).

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, and Eubank Boulevard are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Fewer than 10 vehicles typically travel to the MSB per week. These include flatbed trucks and trailers carrying supplies and containers of RCRA-regulated waste to and from the MSB.

2.2.3 Traffic Control Signals

A stop sign is located approximately 50 ft west of the Manzano Base entrance gate. Traffic control signals within Manzano Base include stop signs, yield signs, and posted speed limits. Traffic routes and controls at Manzano Base are shown on Figure 6.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii] and 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the MSB are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A [SNL/NM, 2002c] of the SNL/NM General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the MSB are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the SNL/NM General Part B [SNL/NM, 2003b]).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [6-14-0010-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [6-14-00 10-1-03]).
- Surface waters, including intermittent streams, near the MSB are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [6-14-0010-1-03]).
- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [6-14-0010-1-03]). The area surrounding the MSB is occupied by test facilities.
- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [6-14-0010-1-03]).
- Legal boundaries of SNL/NM (including the MSB) are shown on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [6-14-0010-1-03]).
- Access control features at the MSB (e.g., fences, gates) are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [6-14-0010-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the MSB are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [6-14-00 10-1-03]).

- Locations of Manzano Base and the MSB WMAs, access roads, and loading and unloading areas are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [6-14-0010-1-03]). There are no sanitary sewers in the vicinity of the MSB.

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 9 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [6-14-0010-1-03]).

- Locations of Manzano Base and MSB WMAs are shown on Figure7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [6-14-0010-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the MSB. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [6-14-0010-1-03], SNL/NM has submitted the maps to the NMED at these scales and contour intervals due to the size of the MSB, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c] and 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of this comprehensive Part B permit request. The MSB is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor are the MSB likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, "General Waste Analysis" [6-14-0010-1-03], waste analysis requirements applicable to all Units, including the MSB, are addressed in Appendix B of the SNL/NM General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [6-14-0010-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [6-14-0010-1-03] required that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardousRCRA-regulated waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated wastes management activities to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the "Site-Wide Inspection Plan", provided as Appendix C of the SNL/NM General Part B. Unit personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 1, with the inspection criteria and frequency.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) is maintained at the existing RMWMF/future CWMF. Inspection records for the current calendar year are maintained at each bunker. Inspection records for previous calendar years are maintained at the existing RMWMF/future CWMF or the SNL/NM Records Center.

Table 1
Manzano Storage Bunker Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 2 "Emergency Equipment and Locations" in this module for additional information**		
Portable eye wash	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, accessible, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Smoke alarm	Present	Monthly
Fire extinguisher	Present, charged, accessible, and in good condition	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Bunker floor	Clean, no spills or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Bunker walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Bunker ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Bunker lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Loading and unloading areas	Good condition, safe working surface, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
SECURITY DEVICES		
Warning signs	Present and in good condition	Monthly
Doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
~~STORED~~ CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.

Table 1 (Concluded)
Manzano Storage Bunker Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
CONTAINERS (cont)		
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900, 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16 [6-14-0010-1-03], "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and safely maintain those areas used for managing RCRA-regulated waste at the MSB.

All job descriptions identified in Appendix D, Table D-2 of the SNL/NM General Part B are applicable at the MSB. MSB personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided in Appendix D of the SNL/NM General Part B.

Training records for MSB personnel are maintained at the existing Radioactive and Mixed Waste Management Facility and will be maintained at the future Consolidated Waste Management Facility at SNL/NM.

6.0 CONTINGENCY PLAN

Emergency response requirements for permittedRCRA-regulated units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [6-14-0010-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [6-14-0010-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the SNL/NM General Part B. Supplemental MSB-specific information is included in this section, Figures 10-12, and in Tables 2 and 3 of this module. Current copies of the sSite-wWide cContingency pPlan and this supplemental information are maintained at each bunker, at the existing RMWMF/future CWMF, and at the SNL/NM Emergency Operations Center.

The U.S. Department of Energy and Sandia Corporation use the five bunkers of the MSB to store containers of RCRA-regulated waste. The MSB are located approximately 1 mile east of the road leading to the entrance of TA-III and -V at the end of Pennsylvania Avenue. The WMAs at the MSB include: a Type B bunker (37034); a Type C bunker (37118); and three Type D bunkers (37045, 37055, and 37057). Bunkers are constructed of concrete (walls, roof, and floor) and are covered by earthen materials.

RCRA-regulated wastes bearing the U.S. EPA listed in the General Part A Permit may be stored at the MSB WMAs. Waste is segregated based on compatibility groups within each bunker.

Figure 10 presents evacuation routes for the MSB. Figures 11 and 12 present emergency response and access information for the MSB. Table 2 lists the emergency equipment typically available at the MSB and additional spill cleanup equipment available at other SNL/NM Units. Table 3 lists the emergency coordinators for the MSB.

The emergency coordinators are informed of planned work activities at the beginning of each work day; this includes activities at Units that are not routinely staffed (such as the MSB).

Table 2
Manzano Storage Bunkers,
Emergency Equipment and Locations

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By inner door inside each bunker
	Personal protective equipment (chemical-resistant gloves and safety glasses)	By inner door inside each bunker
	Absorbents (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By inner door inside each bunker
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the existing RMWMF/future CWMF
	Recovery drums and containers	In equipment storage at the existing RMWMF/future CWMF
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios.
	Smoke Alarms	• Smoke detectors and alarms inside each bunker • Strobe light on front outside each bunker
External Communication System	Mobile Telephone or Portable Radio	Taken to bunkers by personnel
Fire Extinguishers	Portable (A-B-C)	By entrance door outside each bunker
Fire Suppression	Water to Extinguish Fires	KAFB tanker truck at the KAFB fire station in the Manzano administrative area

KAFB Kirtland Air Force Base

Table 3
Manzano Storage Bunkers,
Facility Emergency Coordinator List

November 29, 2004~~April 16, 2003~~

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Jeff Jarry Sandia National Laboratories P. O. Box 5800 Albuquerque, NM 87185	(505) 284-3080 (office) (505) 561-1138 (pager)	(505) 452-3337
First Alternate	Mike Spoerner Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2813 (office) (505) 540-5296 (pager)	(505) 828-3441
Second Alternate	Phil Zelle Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2486 (office) (505) 540-7437 (pager)	(505) 292-5097
Third Alternate	Mary Ann Krauss Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 845-9997 (office) (505) 540-5228 (pager)	(505) 299-0793
Fourth Alternate	Leroy Duran Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-1488 (office) (505) 530-4105 (pager)	(505) 281-4183

One or more of the listed personnel are routinely available at the existing Radioactive and Mixed Waste Management Facility and will be available at the future Consolidated Waste Management Facility during normal work hours (7:00 am to 5:30 pm, Monday through Thursday) and can be contacted by radio or telephone during those hours.

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I [6-14-0010-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the SNL/NM General Part B. The site-wide cClosure pPlan includes a description of the SNL/NM facility,; waste descriptions,; closure performance standards, general closure methods,; a sampling and analysis plan (SAP),; a general closure schedule,; procedures for amendment of the Closure pPlan,; closure certification and letterreport, survey plat, and post-closure requirements. Unit-specific information for closure of the MSB is included in this section.

7.1 Unit Description

Sandia/DOEThe U.S. Department of Energy and Sandia Corporation use the five bunkers of the Manzano Storage Bunkers (MSB) to store containers of RCRA-regulated waste. The MSB are located approximately one1 mile east of the road leading to the entrance of TA-III and -V at the end of Pennsylvania Avenue. The WMAs at the MSB include: a Type B bunker (37034); a Type C bunker (37118); and three Type D bunkers (37045, 37055, and 37057). Bunkers are constructed of concrete (walls, roof, and floor) and are covered by earthen materials.

The Type B bunker is approximately 81 feet (ft) long by 26 ft wide, and the Type C bunker is approximately 80 ft long by 27 ft wide (Figure 13). Each of the Type D bunkers is approximately 61 ft long by 26 ft wide (Figure 14).

7.2 Estimate of Maximum Waste in Storage

The maximum total volumeinventory of RCRA-regulated waste in storage at any time in the MSB is approximately 105,600 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The WMAs are located at the bunkers shown in Figure 2. The maximum total waste volumeinventory is broken down as follows:

- Type B Bunker (37034): 25,080 gallons
- Type C Bunker (37118): 25,080 gallons
- Type D Bunkers (37045, 37055, and 37057): 55,440 gallons (18,480 each)

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 in Appendix F of the SNL/NM General Part Bsite-wide closure plan, partial closure activities specified in this plan assume the following conditions were met during the operational life of the MSB:

- RCRA-regulated Wwaste handling activities that involvedding the opening of waste containers of RCRA-regulated waste at the MSB were confined to the interiors of the bunkers. If contamination occurred, it would have been confined to those areas; and

- The interior walls and floors of RCRA-regulated waste management areaseach WMA were maintained to retain their integrity by following established maintenance and inspection procedures, and breaches of protective coatings did not occur, and a small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the MSB. With respect to the individual WMAs, Sandia/DOE will decontaminate the floor of each by sweeping and washing as described in Section F.5 of the site-wide plan in Appendix F.

7.4.2 Closure Schedule

Section F.7 of the site-wide cClosure pPlan provides a timeline for closure activities applicable to all RCRA-regulated permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the bunkers, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the MSB.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide cClosure pPlan presents general sample collection equipment and techniques applicable to all RCRA-regulated waste management Units at the SNL/NM facility. This Unit-specific sampling and analysis plan (SAP) describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the MSB in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G, [6-14-0010-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples;, required analytical constituents;, numeric closure criteriastandards;, QA/ and quality control [QC] procedures, etc.) regarding RCRA closure of the MSB.

7.5.1 Sampling and Analysis ScopeProject Description

This SAP presents procedures for the acquisition, analyses, and evaluation of wipe samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water

from the floor and interior walls of each of the five WMAs at the MSB: a Type B bunker (37034); a Type C bunker (37118); and three Type D bunkers (37045, 37055, and 37057). Initial wipeAll of the samples will be taken analyzed to determine concentrations of verify that stored RCRA-regulated wastes have not contaminated the WMAs. The wipe samples will be analyzed for a set of indicator parameterscompounds selected from the range of hazardous waste constituents in the range of RCRA-regulated wastes managed in the Unit. These indicator parameterscompounds and the applicable criteria for clean closure are identified in Tables 4 and 5, and the rationale for their selection is presented in Section 7.5.3. If initial sampling confirms the absence of contamination in the structures, decontamination procedures will not be implemented. If contamination is identified, additional sampling may be conducted to delineate the extent of contamination, or those areas will be decontaminated and re-sampled to verify they have been cleaned, as discussed in Section F.5 of the Site-wide closure plan in Appendix F.

This closure will be conducted to support attainment of the performance standards outlined in Section F.4 of the Site-wide closure plan in Appendix F. Section 7.5.3 of this SAP describes the indicator compound levels that will be used to verify that clean closure has been achieved.

Table 4
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA (representative of material removed from entire floor surface)	Barium Cadmium Chromium Lead	281 ppm <1 ppm 21.8 ppm 39 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Barium Cadmium Chromium Lead	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the MSB due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 5
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Dimensions of Area to be Decontaminated	Grid Size	Number of Grids	Samples Per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Floor of Bunker 37034	26' x 81'	26' x 40.5'	2	4	Barium Cadmium Chromium Lead	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Floor of Bunker 37118	27' x 80'	27' x 40'	2	4	Same as above	Same as above
Floor of Bunker 37045	26' x 61'	26' x 30.5'	2	4	Same as above	Same as above
Floor of Bunker 37055	26' x 61'	26' x 30.5'	2	4	Same as above	Same as above
Floor of Bunker 37057	26' x 61'	26' x 30.5'	2	4	Same as above	Same as above

[a] One sample from each pair of floor wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the MSB due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

~~7.5.3~~

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

As indicated in Table 5, two samples of used wash water and two samples of used decontamination rinse water will be collected from each floor grid area shown on Figures 13 and 14. Used wash water will be contained in temporary berms or other containment devices, sampled, and removed prior to the decontamination rinse step. Used rinse water will also be contained in temporary berms or other containment devices, as necessary.~~Selection of sample locations on the wall and floor surfaces in the MSB WMAs will be done using two methods. A randomized grid sampling process will be used to collect area-wide sample data to verify the absence of contamination on floor and wall surfaces, and biased samples will be obtained from surface areas suspected of being contaminated (at locations of stains and discolorations on surfaces, if any are identified).~~

~~Random sample locations have been identified in this SAP, whereas additional biased sample locations will be identified at the time of closure. Table 4 summarizes the random sampling program.~~

~~For the purposes of identifying random sample locations, floor and wall surfaces in each of the MSB WMAs were stratified into five general sample areas (floor, north wall, south wall, east wall, and west wall). Within each grid, a unique set of coordinates (x,y) that identify the center point of the wipe sample location was established as follows:~~

~~Generate a set of coordinates (X, Y) for the selected grid using the following equations:~~

~~X = Xmin + (Xmax - Xmin) * RND~~
~~Y = Ymin + (Ymax - Ymin) * RND~~

~~RND is a random number between 0 and 1, which can be obtained from a scientific calculator, personal computer, or a random number table. X max, Y max and X min, Y min, are the maximum and minimum coordinates, as measured in inches, for the grid. This process was continued until a single set of (x,y) coordinates was assigned to each floor and wall grid. At the time of closure, the surface to be sampled will be marked (using masking tape or chalk) to indicate the location of the sample coordinates. Table 5 provides an example of how these random sample coordinates are located, and Figures 13 through 15 show the sampling grids for each MSB WMA.~~

~~The entire floor surfaces will be gridded for random sampling, and the wall grids will be limited to a height of 5 feet above the floor surface, which includes the areas most likely to have been affected by waste management activities in the Unit.~~

~~Table 4~~
~~Manzano Storage Bunkers~~
~~Summary of Random Sampling Program~~

~~WMA~~	~~Grids[a]~~	~~Wall Samples per Grid~~	~~Floor Samples per Grid~~	~~Indicator Parameters[b]~~	~~Closure Standard[c] ($\mu g/m^2$)~~
~~Bunker 37034~~	~~A – D~~	~~2~~	~~1~~	~~Arsenic~~ ~~Barium~~ ~~Cadmium~~ ~~Chromium~~ ~~Lead~~ ~~Mercury~~ ~~Selenium~~ ~~Silver~~	~~387~~ ~~109,752~~ ~~1,557~~ ~~4,704~~ ~~270~~ ~~157~~ ~~7,839~~ ~~7,839~~
~~Bunker 37118~~	~~A – D~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bunker 37045~~	~~A – D~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bunker 37055~~	~~A – D~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~
~~Bunker 37057~~	~~A – D~~	~~2~~	~~1~~	~~Same as above~~	~~Same as above~~

[a] Refer to Figures 13 – 15 for locations of sample grids.

[b] RCRA toxicity characteristic metals have been selected as indicator constituents to demonstrate clean closure at the MSB; see section 7.5.3 for additional information.

[c] Wipe sample closure standards are from the *World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks*, dated 20 May 2003, Table A-3 *Settled Dust Screening Values and Supporting Toxicity Criteria*.

Table 5
Manzano Storage Bunkers
Example Random Sample Locations

WMA	Grid	Xmin, Xmax (inches)	Ymin, Ymax (inches)	Random X-coordinate (inches)[a]	Random Y-coordinate (inches)[a]
Bunker 37034	A (Floor)	1 – 485	1 – 172	126	43
	A (N. wall)	1 – 485	1 – 60	59	450
	A (W. wall)[b]	1 – 172	1 – 60	38	134

[a] Random X- and Y- coordinates are determined using the procedure described in Section 7.5.2.1.
[b] As shown on Figure 13, there are no east or south walls in Bunker 37034 Grid A.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 4.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 4 and 5. The intent of wipe sampling is to remove any surface contamination and deposit it on the wipe media, where it can be extracted and analyzed in the laboratory. Efficiency of the wipe sampling technique depends on the amount of contamination present and its attraction to wipe media. When moderate to high levels of contamination are expected to be present, wipe media may be saturated with a solvent to increase sampling efficiency. Where contamination is expected to be at low or trace levels, wipe sampling can be done using dry wipe media without risk of overloading the wipe and leaving contamination on the surface.

~~Dry wipe sampling is proposed for this project, and will be conducted in accordance with the following procedures:~~

- ~~Locate the (x,y) coordinates for each sample location using the procedure described in Section 7.5.2.1. An example of random coordinates located using this technique is provided in Table 5. Using these coordinates as the center point, delineate a 1 square foot area around this point.~~

- ~~Don clean, dry, lightweight cotton gloves.~~

- ~~Using stainless steel forceps or tweezers, remove one filter wipe, and place it in the upper left corner of the sampling area. Wipe the area first using down and up strokes, stopping at the opposite diagonal corner (lower right). Without releasing pressure from the wipe media, wipe across to the left, then back and forth up to the original starting position.~~

- ~~Using stainless steel forceps or tweezers, remove the filter wipe from the floor and place in a clean, labeled, wide-mouth glass jar.~~

~~This process will be repeated until all floor and wall grids have been wipe sampled.~~

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.~~The following equipment will be required for the wipe sampling to be conducted at the MSB:~~

- ~~Lightweight, white, cotton gloves (clean-room type)~~

- ~~Stainless steel forceps or tweezers~~

- ~~Filter paper wipes (Whatman® No. 40, 4.25 cm diameter, or equivalent)~~

- ~~A 1 square foot template made from inert material (e.g., Teflon, etc.)~~

- ~~Precleaned 4 oz. or 8 oz. wide-mouth glass jars with screw-top lids~~

- ~~Insulated shipping cooler with frozen, gel-type cooling material and cushioning packaging~~

- ~~Sample collection and custody forms, sample numbers, labels, chain of custody forms, etc.~~

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) ~~is~~ will not be required for the ~~wipe~~ sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

~~*7.5.2.5 Sample Documentation and Custody*~~

~~The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:~~

- ~~In someone's physical possession or view and/or~~
- ~~Secured to prevent tampering, and/or~~
- ~~Secured in an area restricted to authorized personnel~~

~~Each sample will be assigned a unique identifying number as described in Section 7.5.2.6 of this SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:~~

- ~~Name of sampler~~
- ~~Date and time of sample collection~~
- ~~Sample number~~
- ~~Sample matrix and how collected (i.e., grab, composite)~~
- ~~Preservation method~~
- ~~Analysis required~~

~~A chain-of-custody record will be completed for each sample container, and the completed chain-of-custody forms are delivered to the laboratory with the respective samples.~~

7.5.2.67.5.2.5 *Sample Identification*

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, west wall, etc.), the grid identifiernumber (if applicable), the sample type (random or biase.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-37034-A-FL-RANDRINSE-01 would indicate the random filtered rinse water sample taken from the water used to rinse the floor of Grid A in Bunker 37034.

7.5.2.77.5.2.6 *Sample Preservation and Holding Time*

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., . For example, the recommended maximum holding time for metals analysis is 6 months180 days from sample collection until extraction).

7.5.2.7Waste Management

Minimal quantities of waste will be generated through the wipe sampling procedures at the MSB, primarily miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media packaging, and label adhesive backing. In the event that decontamination activities are conducted, rinsate will be collected and placed in appropriate storage containers. All wastes generated during closure of the MSB will be managed in accordance with 20 NMAC 4.1.300/40 CFR 262.34 [6-14-00], pending arrangements for transfer to an SNL/NM Unit or an off-site permitted TSDF.

7.5.3 Demonstration of Clean Closure

A subset of hazardous waste RCRA toxicity characteristic metals has have been selected for use as indicator parameters to demonstrate clean closure at the MSB, as these constituents are present in many of the RCRA-regulated wastes were commonly stored in the bunkers. Other wastes stored in the MSB typically were are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005 waste codes). Wipe sSampling floor sweepings (soil) or decontamination wash and rinse watersof concrete and metal surfaces is not a valid methodof limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, and given the their volatility, of F001-F005 constituents, they would not likely be present on building the floor surfaces even if they these constituents had been released in the past. If residual contamination is present on the floor and wall surfaces of the MSB WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, wipe samples will be analyzed for the subset of hazardous wasteRCRA toxicity characteristic metals only, using EPA Method SW 6010B/7471A, or an equivalent method.

Results from initial wipe sampling of the floor and walls in the MSB will be compared to screening standards developed by EPA for the World Trade Center cleanup (EPA 2003). If

wipe sampling results for the selected indicator parameters are lower than the associated cleanup level, as presented in Table 4, surface contamination is not indicated, and the grid area represented by the sample will be considered to have met the closure criteria. Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and pre-wash water, the grid area will be considered clean. If the wipe sample resultsconcentrations of indicator parameters are substantially elevatedgreater than the cleanup level, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.32.1 of the site-wide Cclosure Pplan.

7.5.4 Quality Control

Quality control (QC) for wipe sampling and analysis at the MSB will be implemented as described in Section F.6 of the site-wide closure plan. QC will be implemented by adherence to the sampling procedures outlined in this SAP, documentation of sampling activities and sample custody, use of controlled and standard equipment and materials, and collection, analysis, and evaluation of field and laboratory QC samples.

The analytical laboratory selected will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure sample preparation and analysis is properly performed and results are of the appropriate and documented quality to ensure that project-specific data quality objectives are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of field samples. The laboratory will perform the following QC checks with each batch of samples, at a minimum frequency of ten percent:

- Blank Spike Analysis – The laboratory will spike an unused filter wipe with a known quantity of closure indicator parameters (RCRA metals) at concentrations near the action levels prior to digestion, then follow the same preparation and analysis techniques as for wipe samples. The purpose of the QC check is to determine whether the filter media has an effect on analyte recovery.
- Method Blank – An unused filter wipe that has not been handled by sampling personnel will be submitted to the laboratory for analysis using the same techniques as for wipe samples. The purpose of this QC check is to assess whether inadvertent contamination has been introduced by the laboratory during the preparation and analysis procedures. Results should not exceed either one-half the laboratory practical quantitation limit or one-tenth the site action level, whichever is lower.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.Initial data reduction and validation will be done by the laboratory contracted to analyze the wipe samples. The laboratory will report the data in accordance with their internal

quality control requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. Quality control acceptance criteria for bias and precision will be included in the analytical report.

Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records shall include instrument tuning and calibration records, batch quality control sample data, control charts and calculations, sample tracking and control documentation, raw analytical sample data, and analytical results.

7.6 Decontamination and Verification Procedures

Section F.5.32 of the site-wide cClosure Pplan presents general decontamination and verification procedures applicable to all RCRA-regulated waste management Units at the SNL/NM facility. Prior to closure, this Unit-specific Closure Pplan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific Closure Pplan will be submitted to NMED for approval prior to initiation of closure activities at the MSB.

8.0 TREATMENT PLAN

Sandia/DOE do not perform treatment of RCRA-regulated wastes requiring a permit at the MSB.

9.0 REFERENCES

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

Sandia National Laboratories/New Mexico (SNL/NM), 20043, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 75.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

Attachment F

Clean Copy of Text and Figures

Task # HWB-SNL-02-002
Third NOD

Overview
PART 1
General Part A

Part 2
General Part B, Appendices A through F
Modules I - VI

Volume I
Table of Contents

Overview

1.0 Background
2.0 Comprehensive Part B Permit Request
3.0 Pre-application Public Notice and Meeting

Part 1—General Part A Permit Renewal Request/Application

List of Figures
List of Photographs
Hazardous Waste Permit Application – Part A

Appendices

A Active Environmental Permits
B Location-specific Process Code Listings, Design Capacities, Figures, and Photographs

Part 2—General Part B Permit Renewal Request/Application

Table of Contents
1.0 General Site Operations
2.0 Site Description
3.0 Waste Analysis Plan
4.0 Inspection Plan
5.0 Personnel Training Plan
6.0 Emergency Response and Contingency Plan
7.0 Closure Plan
8.0 Treatment
9.0 Recordkeeping
10.0 Other Federal Laws
11.0 Corrective Action
12.0 Certification
13.0 References

Appendices

A Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

B Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

C Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Table of Contents (Continued)

Appendices (Continued)

D Site-Wide Personnel Training Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

E Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

F Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Modules

I	HWMF	Hazardous Waste Management Facility
II	TTF	Thermal Treatment Facility
III	RMWMF/CWMF	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility
IV	Reserved	
V	AHCF	Auxiliary Hot Cell Facility
VI	MSB	Manzano Storage Bunkers

OVERVIEW

1.0 BACKGROUND

Sandia National Laboratories (SNL) is a multi-purpose engineering and science laboratory owned by the U.S. Department of Energy (DOE) and co-operated by Sandia Corporation (Sandia), a subsidiary of Lockheed Martin, and the DOE. Sandia designs non-nuclear components for the nation's nuclear weapons, performs a wide variety of energy research and development projects, and works on assignments that respond to national security threats. Sandia National Laboratories/New Mexico (SNL/NM) is located on Kirtland Air Force Base (KAFB) southeast of Albuquerque, New Mexico. SNL/NM consists of five technical areas (TAs) and several remote testing areas situated in the eastern half of the 80-square-mile KAFB.

Sandia generates wastes that are regulated under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code (NMAC) Title 20, Chapter 4. In this Part B permit request, these wastes are referred to as RCRA-regulated wastes (i.e., wastes that meet the regulatory definition of hazardous or mixed wastes). RCRA-regulated wastes are generated during SNL/NM operations and ongoing corrective actions for solid waste management units (SWMUs). The corrective actions are conducted under the SNL/NM Environmental Restoration (ER) Project.

Since November 19, 1980, Sandia/DOE have managed RCRA-regulated wastes at SNL/NM under the applicable requirements of Title 40 of the Code of Federal Regulations, Parts 260-270, and with the requirements of NMAC Title 20, Chapter 4, as they became effective. Sandia/DOE operations include:

- **Chemical Waste Landfill (CWL).** Sandia/DOE operated the CWL in the southeastern corner of SNL/NM TA-III for disposal of RCRA-regulated wastes under interim status until 1985. Sandia/DOE are closing the landfill under interim status according to a closure plan approved by the New Mexico Environment Department (NMED). Two voluntary corrective measures (VCM) have been performed at the CWL: a vapor extraction VCM, and a landfill excavation VCM. The CWL is a regulated unit under RCRA. Groundwater assessment and monitoring information for the CWL is addressed in this comprehensive Part B permit request. Sandia/DOE will prepare corrective measures documentation as required by the closure plan. Sandia/DOE will also prepare a post-closure care permit application in spring of 2005, as a supplement to this Part B application.

- **Hazardous Waste Management Facility (HWMF).** The HWMF consists of several buildings within a fenced area located south of SNL/NM TA-I. The HWMF is used for storage and packaging of RCRA-regulated wastes. The wastes are transported to off-site RCRA-permitted facilities for treatment, storage, and/or disposal. These wastes are generated during SNL/NM operations and corrective action activities. The Part B hazardous waste operating permit for the HWMF was issued in August 1992 and expired on August 6, 2002. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for the renewal of the HWMF operating permit. Sandia/DOE have revised the request in response to NMED's comments dated June 25, 2004. . The complete updated request for renewal of the HWMF operating permit is included in this November 2004 submittal.

- **Thermal Treatment Facility (TTF).** The TTF consists of a burn cage with ancillary equipment located in a fenced area south of Building 6715 in the northern part of SNL/NM TA-III. The TTF is used for thermal treatment of explosive wastes generated by SNL/NM operations. RCRA-regulated treatment residues (ash) are transported to off-site permitted facilities for treatment, storage, and/or disposal. The Part B hazardous waste operating permit for the TTF was issued on November 4, 1994. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for the renewal of the TTF operating permit. Sandia/DOE have revised the request in response to changes in TTF operations and NMED's comments dated June 25, 2004. The complete updated request for renewal of the TTF operating permit is included in this November 2004 submittal.

- **Radioactive and Mixed Waste Management Facility (RMWMF) / Consolidated Waste Management Facility (CWMF).** The RMWMF consists of several buildings within a fenced area located at the southeastern corner of SNL TA-III, west of the CWL. The RMWMF is used for storage, treatment, and packaging of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. RCRA-regulated wastes and treated residues are transported to off-site permitted facilities for treatment, storage, and/or disposal. The RMWMF is operated under interim status. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a Part B permit application for operation of the RMWMF, which superseded the application submitted to the NMED in December 1996. Sandia/DOE have revised the application in response to NMED's comments dated June 25, 2004.

  Sandia/DOE plan to make physical modifications to the RMWMF in stages during the next three years to increase capacity. Existing RMWMF waste management operations will be maintained during that time. The modified facility will be called the CWMF. Sandia/DOE will continue the same general operations at the CWMF (storage, repackaging, and treatment of RCRA-regulated wastes) that are conducted at the existing RMWMF.

  The application for operation of the RMWMF in this comprehensive Part B permit request has been further modified to reflect the future CWMF and the planned modifications. The application for the existing RMWMF and future CWMF is included in this November 2004 submittal.

- **High Bay Waste Storage Facility (HBWSF).** The HBWSF is an area within Building 6596 in SNL/NM TA-V. The HBWSF was used for storage and packaging of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. RCRA-regulated wastes were transported to off-site permitted facilities for treatment, storage, and/or disposal. The HBWSF is operated under interim status. The comprehensive Part B permit request submitted to NMED in February 2002 included a Part B permit application for operation of the HBWSF, which superseded the application submitted to the NMED in December 1996. Sandia/DOE withdrew the Part B permit application for the HBWSF in April 2003 and most recently submitted a closure plan to NMED in April 2004. Sandia/DOE continue to operate the Unit under interim status and will close it following NMED approval of the closure plan.

- **Auxiliary Hot Cell Facility (AHCF).** The AHCF is located in Building 6597 in SNL/NM TA-V. The AHCF will be used for treatment, packaging, and storage of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. The

comprehensive Part B permit request submitted to NMED on February 6, 2002 included an application for operation of the AHCF. Sandia/DOE have revised the application in response to NMED's comments dated June 25, 2004. The complete updated application for operation of the AHCF is included in this November 2004 submittal.

- **Manzano Storage Bunkers (MSB).** The MSB are a set of Units used for storage of RCRA-regulated wastes generated during SNL/NM operations and corrective action activities. The seven bunkers within the MSB are located within the former Manzano Base in the eastern part of KAFB. RCRA-regulated wastes are typically transported to other SNL/NM Units for storage and/or treatment before being transported to permitted off-site facilities for further treatment, storage, and/or disposal. The MSB are operated under interim status. The comprehensive Part B permit request submitted to NMED in February 2002 included a Part B permit application for operation of the MSB, which superseded the application submitted to the NMED in December 1996. Sandia/DOE have revised the application in response to NMED's comments dated June 25, 2004. The complete updated application for operation of five bunkers in the MSB is included in this November 2004 submittal.

  Two of the bunkers provided extra capacity that was not needed, and they were never used for storage of RCRA-regulated wastes under interim status. Sandia/DOE withdrew the Part B permit application for those two bunkers in April 2003. In December 2003, Sandia/DOE submitted a request to NMED for closure of the two bunkers. Sandia/DOE continue to operate the two Units under interim status until NMED approves the closure request.

- **Corrective action for SWMUs at SNL/NM.** Sandia/DOE have identified numerous SWMUs throughout SNL/NM, and, until issuance of a Compliance Order by the NMED in April 2004, conducted corrective action under Module IV of the Part B Permit issued by the U.S. Environmental Protection Agency (EPA) under the 1984 Hazardous and Solid Waste Amendments to RCRA. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included the required information for SWMUs and Areas of Concern (AOCs) that qualify to be on the permit as determined by NMED. Sandia/DOE updated the information in response to NMED's comments and included the updated information in the April 2003 submittal.

  Corrective action activities are now conducted under the terms of the Compliance Order on Consent between DOE, Sandia, and NMED, dated April 29, 2004.

- **Corrective Action Management Unit (CAMU).** The CAMU was used for staging, treatment, and containment of remediation wastes generated during ER Project activities. The CAMU included staging areas for bulk and containerized waste, a treatment pad, and a containment cell. The CAMU is located at SNL/NM SWMU 107 in the southeastern corner of SNL/NM TA-III, northwest of the CWL and the RMWMF. The 5-year authorization to operate the CAMU under Permit Module IV was issued by EPA on September 25, 1997, and expired on September 20, 2002. The comprehensive Part B permit request submitted to NMED on February 6, 2002 included a request for renewal of the operating authorizations associated with the CAMU. Sandia/DOE completed treatment and containment operations at the CAMU in early 2003, and certified closure of the Unit on October 15, 2003.The CAMU consisted of the following:

- CAMU Temporary Unit (TU) for soil stabilization operations. The temporary unit was one of two treatment units used to treat remediation wastes at the CAMU. Sandia/DOE closed the TU in early 2003, and withdrew it from the comprehensive Part B permit request in August 2003.

- CAMU Low Temperature Thermal Desorption Unit (LTTD) Unit. The LTTD unit was the second of two treatment units used to treat remediation wastes at the CAMU. Sandia/DOE closed the LTTD in early 2003, and withdrew it from the comprehensive Part B permit request in May 2003.

- CAMU Containment Cell. The containment cell holds the remediation wastes. Sandia/DOE constructed a cover on the cell and completed closure in 2003. The CAMU is now maintained under the post-closure care conditions of the CAMU permit application. A comprehensive, stand-alone permit application for CAMU post-closure care was transmitted to the NMED on July 3, 2003. When approved, the post-closure care permit application will be incorporated into the SNL/NM Part B permit application.

2.0 COMPREHENSIVE PART B PERMIT REQUEST

The operations described in Section 1.0 have been addressed separately in past Sandia/DOE permitting activities. Each unit is included in this comprehensive Part B permit request, as requested by the NMED. The request is organized into five parts.

2.1 Part 1

Part 1 consists of this updated introduction; a summary of Sandia/DOE's public notice activities associated with the original permit request submitted in February 2002, and an updated general RCRA Part A permit request. The RCRA Part A includes a list of RCRA-regulated wastes managed at SNL/NM, types of management activities, capacities, waste volumes, and photographs of each unit.

2.2 Part 2

Part 2 consists of the updated Part B permit renewal request/application for the nine RCRA-regulated waste management units associated with ongoing operations at SNL/NM. Sandia/DOE have parts of the request in response to NMED's comments dated June 25, 2004. Part 2 includes complete applications and renewal requests for the HWMF, TTF, existing RMWMF/future CWMF, AHCF, and five MSB.

In order to minimize redundant information, the permit request is presented in the following format:

- A "general" Part B that serves as an umbrella document. The general Part B contains general and site-wide SNL/NM information applicable to all nine of the waste management units, addressing the general information requirements of NMAC Title 20, Chapter 4. The general Part B consists of main text and six appendices.
- Five "modules" – one for the set of five bunkers in the MSB, and one for each of the other units listed above. Each module contains unit-specific information addressing the requirements of NMAC Title 20, Chapter 4. For clarity and consistency, the information in each unit-specific module is arranged in the same order as the information in the General Part B.

The exact order of the information is shown in the table of contents at the beginning of the General Part B and in the tables of contents for each module. The General Part B includes a table of regulatory references and the location of the corresponding information in the permit renewal request/application.

2.3 Part 3

Part 3 consists of a revised discussion of the groundwater information for regulated units (the CWL is the only such unit at SNL/NM). The discussion was revised in response to NMED comments dated September 9, 2003.

2.4 Part 4

Part 4 consists of updated information about SWMUs at SNL/NM. It includes three sections:

- An introduction, including a description of the Sandia/DOE process for identifying SWMUs;
- A summary of the required information for each SWMU and AOC that qualifies to be on the permit as determined by NMED; and
- A summary of supplemental information about Canyons Groundwater, Technical Area III/V Groundwater, and Tijeras Arroyo Groundwater (TAG).

2.5 Part 5

Part 5 has not been updated at this time (November 2004). It consists of the requests for the renewal of authorization to operate the Corrective Action Management Unit (CAMU), its staging areas for bulk and containerized waste, the treatment pad, and the containment cell, that was submitted to NMED in February 2002. Part 5 will consist of the post-closure care plan for the CAMU containment cell when the plan is approved by the NMED. In addition, this Part will be amended to contain the post-closure care permit application for the CWL, expected in spring of 2005.

3.0 PRE-APPLICATION PUBLIC NOTICE AND MEETING

As required under 20 NMAC 4.1.901/40 CFR 124.31, Sandia/DOE held a pre-application public meeting to inform the community about waste management activities at SNL/NM and about the "comprehensive Part B permit request," and to solicit questions.

Sandia/DOE and the US Air Force hold joint quarterly public meetings to inform the community about ongoing environmental restoration and waste management activities. Sandia/DOE included the comprehensive Part B permit request in the agenda of the meeting held on January 17, 2002 at the Radisson Hotel and Conference Center, I-40 and Carlisle NE, Albuquerque NM.

3.1 Public Notice

Sandia/DOE provided public notice of the pre-application meeting in accordance with the requirements of 20 NMAC 4.1.901/40 CFR 124.31(d):

- Sandia/DOE published a display advertisement in the Albuquerque Journal and Albuquerque Tribune on December 18, 2001 (30 days before the meeting). A copy of the notice is included in the attachment.
- Sandia/DOE attached two copies of a visible and accessible sign announcing the public meeting to the external fence of Kirtland Air Force Base outside two of the most heavily-used entrance gates. Photographs of the signs are included in the attachment.
- Sandia/DOE broadcast an announcement of the meeting on KIOT FM on December 18, 2001. An affidavit of service and the text of the broadcast message are included in the attachment.
- Sandia/DOE sent the notice to the New Mexico Environment Department and to other federal, state, and local agencies with jurisdiction over Sandia/DOE and SNL/NM. The list of addressees and a copy of the letter to NMED are included in the attachment.

In addition to these notices, the agenda for the public meeting (which included the comprehensive Part B permit request) was mailed to the 692 persons on the distribution list. This distribution list is open to all members of the public. The agenda is included in the attachment.

3.2 Public Meeting

The comprehensive Part B permit request was the last item on the agenda at the meeting on January 17, 2002. A sign-up sheet was placed on the welcome table outside the meeting room. A list of attendees and their addresses is included in the attachment.

Sandia/DOE personnel presented background information about Sandia's operations and waste management activities. The presentation also included Unit-specific information for the HWMF, TTF, RMWMF, HBWSF, AHCF, MSB, CAMU, LTTD, TU, CWL, and solid waste management units. Information for each unit included: location at SNL/NM; waste management activities; current permit status; and requested permit action.

Sandia and DOE personnel solicited questions from the audience. None were asked during or after the presentation, and no written comments were submitted at or after the meeting. A copy of the presentation slides is included in the attachment.

ATTACHMENT

PRE-APPLICATION
PUBLIC NOTICE AND PUBLIC MEETING INFORMATION INCLUDING:

Newspaper Display Notice

Signs Announcing Public Meeting

Affidavit of Radio Announcement

Public Notice and Mailing List

DOD/DOE Quarterly Public Meeting Agenda

DOD/DOE Quarterly Public Meeting Attendance List

Sandia/DOE Public Meeting Part B Presentation Slides

Newspaper Display Notice

SANDIA NATIONAL LABORATORIES

P.O. Box 5800 Albuquerque, New Mexico 87185

Public Notice of "Part B" Permit Application / Renewal Request
Sandia National Laboratories/New Mexico (SNL/NM)
EPA ID No. NM5890110518

Sandia National Laboratories (SNL) is a multi-purpose engineering and science laboratory operated for the US Department of Energy (DOE) by Sandia Corporation (Sandia), a subsidiary of Lockheed Martin. Sandia designs all non-nuclear components for the nation's nuclear weapons, performs a wide variety of energy research and development projects, and works on assignments that respond to national security threats. SNL is located on Kirtland Air Force Base southeast of Albuquerque, New Mexico.

Sandia generates hazardous and hazardous/radioactive mixed wastes through normal operations. Sandia also generates hazardous and mixed wastes through an ongoing environmental restoration project involving cleanup of sites that were formerly used for operations such as testing and disposal. Sandia has an active and successful program to minimize hazardous and mixed wastes through product substitutions, process changes, material re-use, and recycling.

Sandia and the DOE are submitting a comprehensive "Part B" permit request package for management of hazardous and hazardous/radioactive mixed wastes at SNL/NM. The package includes several parts:

* Renewing permits to operate two units for storage and treatment of wastes from operations and environmental restoration activities.
* Updating previous applications for a permit to operate three units for storage and treatment of wastes from operations and environmental restoration activities.
* Requesting a permit to operate one additional unit for storage and treatment of wastes from operations and environmental restoration activities.
* Renewing authorization to operate three units for storage, treatment, and containment of wastes from the environmental restoration project.

A public meeting is scheduled for:

January 17, 2002
6:30 p.m. - 8:30 p.m.
Radisson Hotel and Conference Center
I-40 and Carlisle NE
Albuquerque, New Mexico

Sandia and the DOE will provide information about Sandia's hazardous and hazardous/radioactive mixed waste management activities and the permit request package. This is the final item on the agenda of this public meeting. All interested persons are invited to attend, and questions are welcome. For further information, contact

Mr. Ron Dobbs
U.S. Department of Energy, Kirtland Area Office
P.O. Box 5400
Albuquerque, New Mexico 87185
(505) 845-4428

Note: If you need special access to attend the meeting, please contact Mr. Dobbs at least 72 hours before the meeting.

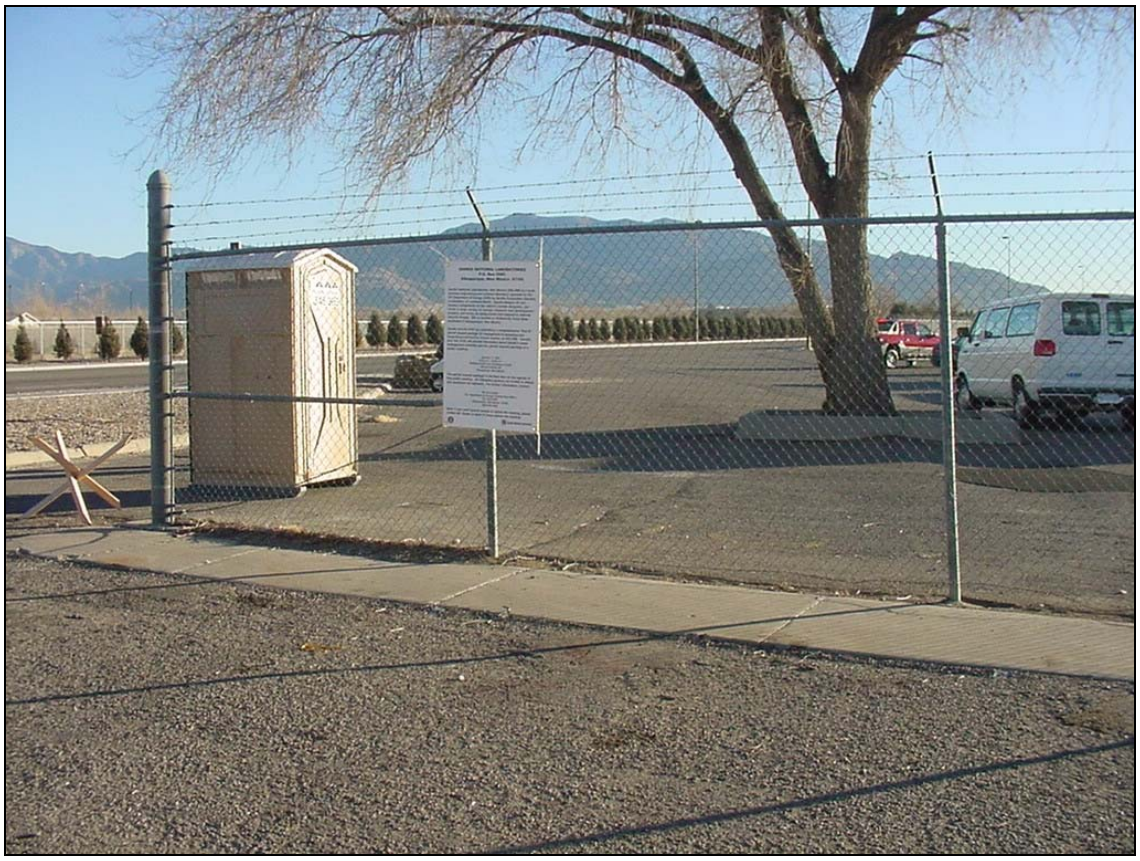
Signs Announcing Public Meeting

Sign on KAFB Fence on Wyoming Ave. North of KAFB Gate
Photograph taken December 18, 2001

The 28-by-42-inch sign announced the public meeting to be held on January 17 regarding the Sandia/DOE “comprehensive Part B permit request”. The sign was attached to the west side (the outside) of the Kirtland Air Force Base fence on the Wyoming Avenue north of the Wyoming entrance gate to the base. A gasoline service station is located at the right edge of the picture.

Sandia personnel put the sign up on December 18, 2001 and took it down on the evening of December 20 because 40 CFR 124.31(c) does not specify the length of time the sign is to be displayed. Late on December 20, DOE received direction from NMED that the sign was to be up until the meeting. Sandia personnel put the sign back up on December 21 and took it down on the evening of January 17, 2002.

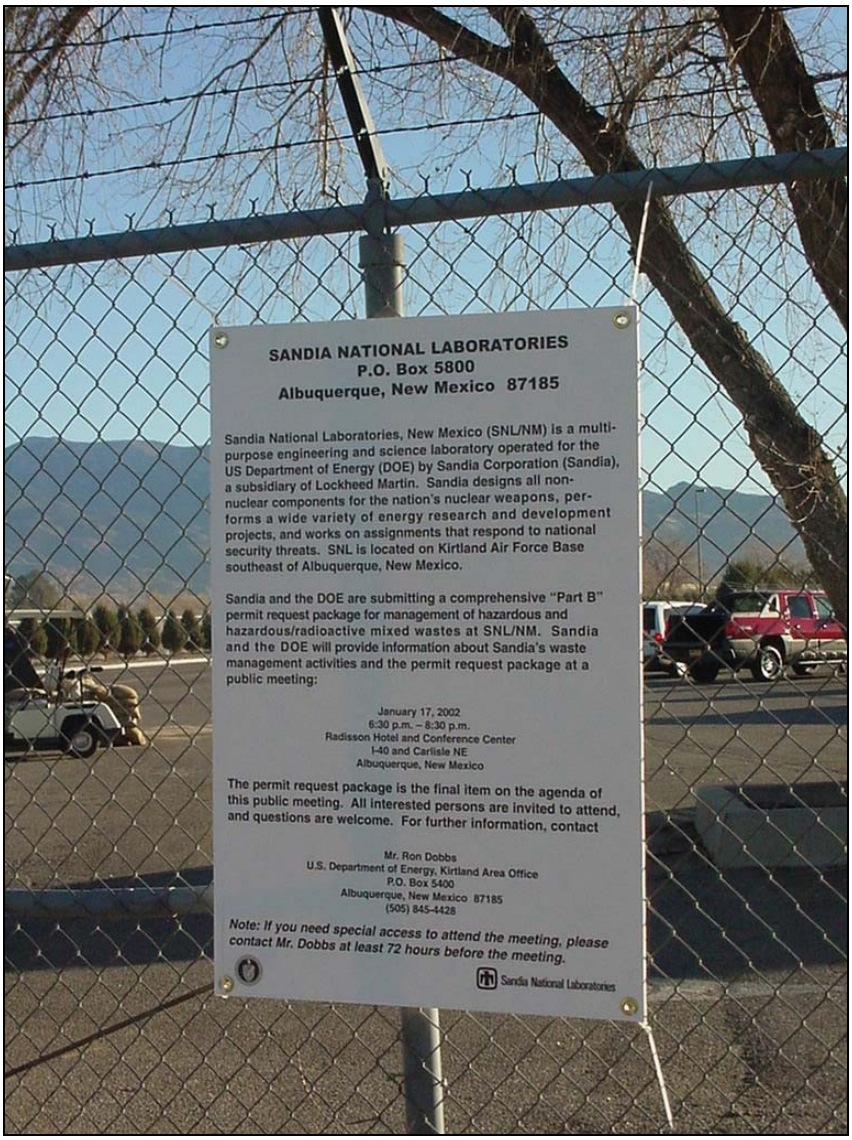
The sign contains the same text as the newspaper advertisement and the letters to federal, state, and local agencies.



Sign on KAFB Fence at the Intersection of Gibson Blvd. and Louisiana Blvd.
Photograph taken December 19, 2001

Sandia personnel attached a second 28-by-42-inch sign announcing the public meeting to the west side (the outside) of the KAFB fence on the southeast corner of the intersection. The second sign was identical to the sign attached to the fence north of the Wyoming gate.

The second sign was put up on December 18, taken down on the evening of December 20, put back up on December 21, and taken down on January 18.



Close-Up View of Sign on KAFB Fence at the Intersection of Gibson Blvd. and Louisiana Blvd.
Photograph taken December 19, 2001

Affidavit of Radio Announcement

rom: P.O. BOX 25852
SIMMONS MEDIA GROUP
ALBUQUERQUE, NM 87125-5852
PH:505-262-1142
FAX:505-262-9211

dvertiser: SANDIA NATIONAL LABS

NL001 MICHELSOHN CREATIVE
8016 CONSTITUTION PL NE
ALBUQUERQUE, NM 87110

INVOICE

DATE
12/30/01
INVOICE NUMBER
28475

AFFIDAVIT OF SERVICE RENDERED

State of NEW MEXICO
County of BERNALILLO } SS:

The Undersigned Having Been Duly Sworn, Deposes and Says That Broadcasting Service Has Been Rendered by Radio Station in Accordance With the Accompanying Statement:

By .....

Subscribed and Sworn to Before Me this 31 day of Dec 20 01

LAURIE JARAMILLO NOTARY PUBLIC

My Commission Expires 5/24/2003

OFFICIAL SEAL
LAURIE JARAMILLO
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires

Page 1

DATE	ACCOUNT / RUN DETAIL	LENGTH	NO. RUN	RATE	AMOUNT
	Contract 27585 01/17/02 MEETING				
	JAN 17 MEETING				
12/15/01	KIOT FM 0:20 5:33	60	2	0.00	0.00
	Total Sales -----		2		0.00

SIMMONS MEDIA GROUP

PAYMENT TERMS: NET 30 DAYS

Sales Rep: STEVE WEARDEN

A Finance Charge, is computed by a **PERIODIC RATE OF 1½% PER MONTH,** which is an **ANNUAL PERCENTAGE RATE OF 18%,** added to the unpaid balance at the end of the next month following date of purchase.

THIS INVOICE WAS PREPARED FROM OFFICIAL STATION PROGRAM LOGS
TIMES SHOWN ABOVE ARE ACCURATE PLUS OR MINUS 8 MINS.

PLEASE PAY THIS AMOUNT XXXXXXX.XX 0.00

SANDIA NATIONAL LABS
RADIO: 60
JANUARY 17, 2002 MEETING"

SANDIA NATIONAL LABORATORIES, A MULTI-PURPOSE ENGINEERING AND SCIENCE LABORATORY OPERATED FOR THE U.S. DEPARTMENT OF ENERGY, DESIGNS ALL NON-NUCLEAR COMPONENTS FOR THE NATION'S NUCLEAR WEAPONS. SANDIA PERFORMS A VARIETY OF RESEARCH AND DEVELOPMENT PROJECTS AND WORKS ON ASSIGNMENTS IN RESPONSE TO NATIONAL SECURITY THREATS. SANDIA IS LOCATED ON KIRTLAND AIR FORCE BASE, SOUTHEAST OF ALBUQUERQUE, NEW MEXICO. SANDIA AND THE D.O.E. WILL HOST A PUBLIC MEETING TO DISCUSS THE MANAGEMENT OF HAZARDOUS WASTES AND MIXED HAZARDOUS AND RADIOACTIVE WASTES AT THE LABORATORIES. PRESENTERS WILL PROVIDE INFORMATION ABOUT SANDIA'S WASTE MANAGEMENT ACTIVITIES AND THE PERMIT REQUEST PACKAGE THAT SANDIA AND D.O.E. WILL SUBMIT TO THE NEW MEXICO ENVIRONMENT DEPARTMENT AT THE PUBLIC MEETING. THE MEETING WILL BE HELD THURSDAY, JANUARY 17, 2002 FROM 6:30 PM TO 8:30 PM AT THE RADISSON HOTEL AND CONFERENCE CENTER NEAR I-40 AND CARLISLE NE IN ALBUQUERQUE. THIS PRESENTATION IS THE FINAL ITEM ON THE MEETING'S AGENDA. SANDIA AND D.O.E. ENCOURAGE ALL INTERESTED PERSONS TO ATTEND. YOUR QUESTIONS ARE WELCOME. FOR FURTHER INFORMATION, CONTACT MR. RON DOBBS OF THE U.S. DEPARTMENT OF ENERGY AT 845-4428. YOU MAY WRITE HIM AT P.O. BOX 5400, ALBUQUERQUE, NEW MEXICO, 87185. IF YOU NEED SPECIAL ACCESS TO ATTEND THE MEETING, PLEASE CONTACT MR. DOBBS AT LEAST 72 HOURS BEFORE THE MEETING.

(211 WORDS)

Public Notice and Mailing List

Department of Energy
National Nuclear Security Administration
Albuquerque Operations Office
Office of Kirtland Site Operations
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

FEB 1 8 2001

Peter Maggiore
State of New Mexico
Environment Department
PO Box 26110
Santa Fe, NM 87502-0110

Subject: Public Notice of "Part B" Permit Application / Renewal Request
Sandia National Laboratories/New Mexico (SNL/NM) EPA ID No. NM5890110518

Dear Mr. Maggiore:

Sandia National Laboratories (SNL) is a multi-purpose engineering and science laboratory operated for the US Department of Energy (DOE) by Sandia Corporation (Sandia), a subsidiary of Lockheed Martin. Sandia designs all non-nuclear components for the nation's nuclear weapons, performs a wide variety of energy research and development projects, and works on assignments that respond to national security threats. SNL is located on Kirtland Air Force Base southeast of Albuquerque, New Mexico.

Sandia generates hazardous and hazardous/radioactive mixed wastes through normal operations. Sandia also generates hazardous and mixed wastes through an ongoing environmental restoration project involving cleanup of sites that were formerly used for operations such as testing and disposal. Sandia has an active and successful program to minimize hazardous and mixed wastes through product substitutions, process changes, material re-use, and recycling.

Sandia and the DOE are submitting a comprehensive "Part B" permit request package for management of hazardous and hazardous/radioactive mixed wastes at SNL/NM. The package includes several parts:

- Renewing permits to operate two units for storage and treatment of wastes from operations and environmental restoration activities.
- Updating previous applications for a permit to operate three units for storage and treatment of wastes from operations and environmental restoration activities.
- Requesting a permit to operate one additional unit for storage and treatment of wastes from operations and environmental restoration activities.
- Renewing authorization to operate three units for storage, treatment, and containment of wastes from the environmental restoration project.

A public meeting is scheduled for:

January 17, 2002
6:30 p.m. – 8:30 p.m.
Radisson Hotel and Conference Center
I-40 and Carlisle NE
Albuquerque, New Mexico

Sandia and the DOE will provide information about Sandia's hazardous and hazardous/radioactive mixed waste management activities and the permit request package. This is the final item on the agenda of this public meeting. All interested persons are invited to attend, and questions are welcome. For further information, contact:

Mr. Ron Dobbs
U.S. Department of Energy, Kirtland Area Office
P.O. Box 5400
Albuquerque, New Mexico 87185
(505) 845-4428

Note: if you need special access to attend the meeting, please contact Mr. Dobbs at least 72 hours before the meeting.

Sincerely,

Ronald Dobbs

for George K. Laskar
Associate Director for
Laboratory Operations

cc:
J. P. Bearzi, NMED HWB
MS-1087 W. P. Moats, NMED
MS-1396 R. Kennett, NMED
MS-0184 R. Dobbs, DOE/KAO
MS-0141 E. D. Krauss, 11300
MS-1151 A. S. Reiser, 3125
MS-1151 J. J. Thompson, 3125
MS-1151 M. J. Irwin, 6134

Agencies and Other Recipients of Notice of Pre-Application public Meeting

Name	Agency and Department		Address			
Environmental Public Affairs Officer	377th Air Base Wing	Public Affairs	2000 Wyoming Blvd SE	Kirtland Air Force Base	NM	87117-5606
Ralph Francis	377th Air Base Wing	Public Affairs	2000 Wyoming Blvd SE	Kirtland Air Force Base	NM	87117-5000
Clinton Abell	377th Air Base Wing		AMDS/SGPB	Kirtland Air Force Base	NM	87117-5270
Mark Holmes	377th Air Base Wing	Environmental Management Division	2050 Wyoming Blvd. SE, Suite 128	Kirtland Air Force Base	NM	87117-5270
Steve Milligan	377th Air Base Wing	Environmental Management Division	2050 Wyoming Blvd. SE, Suite 128	Kirtland Air Force Base	NM	87117-5270
Jerry Sillerud	377th Air Base Wing		377 SPTG/CEVR	Kirtland Air Force Base	NM	87117-5270
Chief Lovato	377th Air Base Wing		377 SPTT/CEF	Kirtland Air Force Base	NM	87117
John Kelly, Executive Engineer	Albuquerque Metropolitan Arroyo Flood Control Authority		2600 Prospect Ave NE	Albuquerque	NM	87107
Environmental Protection Officer	All Indian Pueblo Council	Office of Environmental Protection	PO Box 3256	Albuquerque	NM	87190
Richard Brusuelas, Director	Bernalillo County	Environmental Health Department	600 Second St NW, Suite 400	Albuquerque	NM	87102
Lord Skeie-Campbell	Bernalillo County	Groundwater Protection Advisory Board	600 Second St NW, Suite 500	Albuquerque	NM	87102
Alfredo Santistevan, Director	City of Albuquerque	Environmental Health Department	PO Box 1293	Albuquerque	NM	87103
Bob Gurule	City of Albuquerque	Public Works Department	PO Box 1293	Albuquerque	NM	87103-1293
David Anthony Segura Acting Director	City of Albuquerque	Solid Waste Department	PO Box 1293	Albuquerque	NM	87103-1293
Executive Assistant to the Mayor	City of Albuquerque		PO Box 1293	Albuquerque	NM	87103
Honorable Martin Chavez, Mayor	City of Albuquerque		PO Box 1293	Albuquerque	NM	87103
Karren Suesz	DOE Community Resource Information Office		8338A Comanche NE	Albuquerque	NM	87110
Lawrence C. Troncosa	Middle Rio Grande Conservancy District		1931 Second St. SW	Albuquerque	NM	87102
Jane Altweis	Office of US Rep Heather Wilson		625 Silver SW	Albuquerque	NM	87102
Sharon Miner	Office of US Senator Jeff Bingaman		625 Silver SW	Albuquerque	NM	87102
Agnes Orczo	Office of US Senator Pete Domenici		625 Silver SW, Suite 120	Albuquerque	NM	87102

Name	Agency and Department		Address			
Jim Piatt	Pueblo of Isleta	Environmental Division	PO Box 1270	Isleta	NM	87022
John McKean	State of New Mexico	Office of the Governor	PERA Bldg, Room 542	Santa Fe	NM	87503
Elmo Baca, Director	State of New Mexico	Cultural Affairs Office, Historic Preservation Division	228 East Palace Avenue	Santa Fe	NM	87501
	USGS	New Mexico District Office	4501 Indian School Rd NE	Albuquerque	NM	87110
Ray Powell, Comissioner of Public Lands	State of New Mexico	Land Office	PO Box 1148	Santa Fe	NM	87504-1148
Peter Maggiore, Secretary	State of New Mexico	Environment Department	PO Box 26110	Santa Fe	NM	87502-0110
Larry Bell, Director	State of New Mexico	Game and Fish Department	PO Box 25112	Santa Fe	NM	87504
K. Carroll McKinney, Chief	US Army Corps of Engineers	HTRW Section	4101 Jefferson Plaza NE	Albuquerque	NM	87109
Tom Remington, Natural Resources Manager	US Bureau of Indian Affairs		PO Box 26567	Albuquerque	NM	87125-6567
Ed Singleton, Field Manager	US Bureau of Land Management		435 Montano NE	Albuquerque	NM	87107
David Neleigh, RCRA NM Federal Facilities Section	US Environmental Protection Agency, Region VI	Multimedia Planning and Permitting Department	1445 Ross Ave	Dallas	TX	75202-2733
Thomas F. O'Brien	US Fish & Wildlife Service		2105 Osuna Rd NE	Albuquerque	NM	87113-1001
Dr. Joy Nicoloposis	US Fish & Wildlife Service - Ecological Services		2105 Osuna Rd NE	Albuquerque	NM	87113-1001
	US Forest Service		11776 Highway 337	Tijeras	NM	87059
Liz Agpaoa, Forest Supervisor	US Forest Service	Cibola National Forest	2113 Osuna Rd NE, Suite A	Albuquerque	NM	87113-1001
Eleanor S. Towns, Regional Forester	US Forest Service		517 Gold Ave SW	Albuquerque	NM	87102

DOD/DOE Quarterly Public Meeting Agenda

DOD/DOE Quarterly Public Meeting

Environmental Restoration and Waste Management Activities
For Kirtland Air Force Base and Sandia National Laboratories

January 17, 2001
6:30 - 8:30 p.m.
Radisson Hotel & Conference Center
1-40 and Carlisle NE
Albuquerque, NM

Note: This will be a joint meeting between the Kirtland Air Force Base IRP program and the Sandia National Laboratories ER Project.

DOD Quarterly Public Meeting

Introductory Remarks	Steve Milligan 377th ABW Public Affairs Kirtland Air Force Base
Agenda items to be determined	
Public Comment	Public
Break	

DOE Quarterly Public Meeting

DOE Host Remarks	John Gould Department of Energy/KAO
Corrective Measures Study for Sandia's Mixed Waste Landfill -- The Regulatory Process	Will Moats New Mexico Environment Dept.
Corrective Measures Study for Sandia's Mixed Waste Landfill -- Remedial Actions	John Gould Department of Energy/KAO
Corrective Action Management Unit (CAMU) Waste Treatment Using Thermal Desorption	Mike Irwin Sandia National Laboratories

(please turn over)

Long-Terin Environmental Stewardship Status Report	Joe Estrada Department of Energy/KAO
Sandia's "Part B" Permit for Handling Hazardous and Mixed Wastes	Anita Reiser Sandia National Laboratories
Public Comment	Public

Further information:
John Gould
Department of Energy/Kirtland Area Office
PO Box 5400
Albuquerque, NM 87185-5400
505/845-6089

Steve Milligan
377th ABW Public Affairs
Kirtland Air Force Base
IR Program
505/846-9003

Mailing List Maintainer

You are on a mailing list to receive information about Sandia National Laboratories' environmental activities. If you would like your name removed from the list, or changes made to your address please respond by:

Calling 844-1690
Faxing 284-2616, or
Emailing to: rwkeene@sandia.gov
Regular Mail: PO Box 5800, Albuquerque, NM 87185-1089

Thank you for your help!

DOD/DOE Quarterly Public Meeting Attendance List

DOE/Sandia National Laboratories & Kirtland Air Force Base Quarterly Public Meeting January 17, 2002	
NAME	**MAILING ADDRESS**
1. Terry, Diane	1000 Betts NE, Albuquerque, NM 87112
2. Stepp, Leon	11717 Paseo del Oso NE, Albuquerque, NM 87110
3. Brocklebank, Jean	1236 Lobo Place NE, Albuquerque, NM 87106
4. Taylor, Ralph	1304 Glorieta NE, Albuquerque, NM 87112
5. Clemens, Joni	1417 Jefferson NE, Albuquerque, NM 87110
6. Marchand, Hal	1520 University Blvd. NE #B, Albuquerque, NM 87102
7. Ramponi, JoAnne	1521 Muriel NE, Albuquerque, NM 87112
8. Weisberg, Maurice	1677 Cerro Gordo, Santa Fe, NM 87501
9. Vigil, Ed	1824 Sandler Court NE, Albuquerque, NM 87112
10. Long, Bob	211 Valle Vista, Corrales, NM
11. Maldonado, James	2213 Muniz Road SW, Albuquerque, NM 87108
12. Ong, Kim	316 Dartmouth NE, Albuquerque, NM 87106
13. Reiser, Anita	3521 Parisian Way NE, Albuquerque, NM 87111
14. Reiser, Sylvia	3521 Parisian Way NE, Albuquerque, NM 87111
15. Reiser, Tim	3521 Parisian Way NE, Albuquerque, NM 87111
16. Reiser, Will	3521 Parisian Way NE, Albuquerque, NM 87111
17. Richards, Craig	4424 Sherre Dr. NE, Albuquerque, NM 87111
18. Peters, Kelley	4533 Trumbull SE, Albuquerque, NM 87108
19. Nelson, Terry	4909 Northridge Place NE, Albuquerque, NM 87111
20. Woodard, Tom	5301 Central Ave. SE, Albuquerque, NM 87108
21. Irwin, Mike	5524 Via Conejo NE, 87111
22. Truske, Ted	Albuquerque, NM
23. Earp, Doug	City of Albuquerque, 4600 Edith NE, Albuquerque, NM 87107
24. Martinez, Therese	City of Albuquerque, Air Quality Division, 4600 Edith NE, Albuquerque, NM 87107
25. Hoffman, Will	City of Albuquerque, Solid Waste Division, 4600 Edith NE, Albuquerque, NM 87107
26. Chang, Allen	EPA, 1445 Ross Ave., Dallas, TX 75202
27. Miller, Gary	EPA, 1445 Ross Ave., Dallas, TX 75202
28. Goering, Tim	GRAM
29. Nguyen, Hanh	Hnguyen@unm.edu
30. Dunlop, Eric	KAFB
31. Milligan, Steve	KAFB
32. Abell, Clint	KAFB - 377 SPTG/CEVR
33. Cooper, Terry	KAFB - 377 SPTG/CEVR
34. Hale, Alan	KAFB - 377 SPTG/CEVR
35. Holmes, Mark	KAFB - 377 SPTG/CEVR
36. Sillerud, Jerry	KAFB - 377 SPTG/CEVR
37. Francis, Ralph	KAFB - 377ABW/PA
38. Johnston, Jeff	Montgomery Watson Harza, 6100 Indian School Road, Albuquerque, NM 87110
39. Kennett, Roger	NMED
40. Kilbury, Rich	NMED
41. Moats, Will	NMED
42. Voss, Lance	NMED
43. Estrada, Joe	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185
44. Zamorksi, Mike	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185
45. Gould, John	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185
46. Dobbs, Ron	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185

DOE/Sandia National Laboratories & Kirtland Air Force Base Quarterly Public Meeting January 17, 2002	
NAME	**MAILING ADDRESS**
47. Gardipe, Mike	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185
48. Moore, Tami	NNSA/DOE, PO Box 5400, Albuquerque, NM 87185
49. Dayton, Sue	PO Box 1133, Sandia Park, NM 87047
50. Nelson, Miles	PO Box 1133, Sandia Park, NM 87047
51. Deichmann, Jens	PO Box 1148, Santa Fe, NM 87504
52. Duncan, Dianne	PO Box 3316, Edgewood, NM 87015
53. Young, Jessie	Rfkjessamyn@aol.com
54. Davis, MJ	SAIC, 2109 Air Park Road SE, Albuquerque, NM 87106
55. Hoier, Sally	Sandia National Laboratories
56. Keener, Will	Sandia National Laboratories
57. Miller, David	Sandia National Laboratories
58. Peace, Jerry	Sandia National Laboratories
59. Thompson, Jim	Sandia National Laboratories
60. Young, Sharissa	Sandia National Laboratories
61. Price, Joe	USFS, Sandia Road, Tijeras, NM

Sandia/DOE Public Meeting Part B Presentation Slides

Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application

Revision 7.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF PHOTOGRAPHS

RCRA SUBTITLE C SITE IDENTIFICATION FORM

HAZARDOUS WASTE PERMIT INFORMATION FORM

APPENDIX A ACTIVE ENVIRONMENTAL PERMITS

APPENDIX B LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, ANNUAL QUANTITIES, FIGURES, AND PHOTOGRAPHS

LIST OF FIGURES

Figure No.	Title
B-1	Topographic Map
B-2	Sandia National Laboratories/New Mexico, Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units
B-3	Hazardous Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-4	Hazardous Waste Storage Building (Building 958), Floor Plan
B-5	Hazardous Waste Packaging Building (Building 959), Floor Plan
B-6	Thermal Treatment Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
B-7	Thermal Treatment Facility (TTF)-Plan View
B-8	Location of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility in Technical Area III
B-9	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-10	Radioactive and Mixed Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-11	Consolidated Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-12	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-13	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-14	Consolidated Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Areas
B-15	Location of the High Bay Waste Storage Facility (HBWSF) in Technical Area (TA) V
B-16	High Bay Waste Storage Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
B-17	Location of the Auxiliary Hot Cell Facility (AHCF) in Technical Area (TA) V
B-18	Auxiliary Hot Cell Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas

LIST OF FIGURES (Concluded)

Figure No.	Title
B-19	Location of the Manzano Storage Bunkers at Manzano Base
B-20	Manzano Storage Bunkers, Type B, Bunkers 37034 and 37063
B-21	Manzano Storage Bunkers, Type C, Bunkers 37078 and 37118
B-22	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, and 37057

LIST OF PHOTOGRAPHS

Photograph Title

Hazardous Waste Management Facility, Buildings 958 and 959
Hazardous Waste Management Facility, Flammable Waste Storage Bay in Building 958
Hazardous Waste Management Facility, Waste Storage Bays in Building 959
Hazardous Waste Management Facility, Modular Storage Buildings (958B and 958C) for Reactive and Ignitable Wastes
Thermal Treatment Facility, Viewed from Roof of Building 6715
Thermal Treatment Facility, Rear View of Burn Cage from Top of Earthen Berm
Thermal Treatment Facility, Front View of Burn Pan (with Lid Down) Inside Burn Cage
Existing Radioactive and Mixed Waste Management Facility, East Side of Building 6920
Existing Radioactive and Mixed Waste Management Facility, West Side of Building 6920
Existing Radioactive and Mixed Waste Management Facility, Building 6920, South Bay
Existing Radioactive and Mixed Waste Management Facility, Building 6921
Existing Radioactive and Mixed Waste Management Facility, Building 6925
Existing Radioactive and Mixed Waste Management Facility, Building 6925, Interior
Existing Radioactive and Mixed Waste Management Facility, Building 6926
Existing Radioactive and Mixed Waste Management Facility, Modular Storage Buildings
High Bay Waste Storage Facility, South Side of Building 6596
High Bay Waste Storage Facility, West Side of Building 6596
Auxiliary Hot Cell Facility, North Side of Building 6597
Auxiliary Hot Cell Facility, Work Area North of Auxiliary Hot Cell
Auxiliary Hot Cell Facility, Fume Hood and Work Area North of Auxiliary Hot Cell
Auxiliary Hot Cell Facility, Operator Controls for Work Area and Hot Cell
Manzano Storage Bunkers, Type B, Front View of Bunker 37034
Manzano Storage Bunkers, Type B, Front View of Bunker 37063
Manzano Storage Bunkers, Type C, Front View of Bunker 37078
Manzano Storage Bunkers, Type C, Front View of Bunker 37118
Manzano Storage Bunkers, Type D, Front View of Bunker 37045
Manzano Storage Bunkers, Type D, Front View of Bunker 37055
Manzano Storage Bunkers, Type D, Front View of Bunker 37057

MAIL THE COMPLETED FORM TO: The Appropriate EPA Regional or State Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	

1. Reason for Submittal (See instructions on page 25) CHECK CORRECT BOX(ES)	**Reason for Submittal:** ☐ To provide initial notification (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities). ☐ To provide subsequent notification (to update site identification information). ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application. ☒ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # *7)* ☐ As a component of the Hazardous Waste Report.							
2. Site EPA ID Number (See instructions on page 26)	**EPA ID Number**: *NM5 890 110 518*							
Site Name (See instructions on page 26)	**Name:** *Sandia National Laboratories*							
4. Site Location Information (See instructions on page 26)	**Street Address:** *1515 Eubank Blvd. SE*							
	City, Town, or Village: *Albuquerque*			**State:** *NM*				
	County Name: *Bernalillo*			**Zip Code:** *87123*				
5. Site Location (See instructions on page 26)	**Site Land Type :**	☐ **Private**	☐ **County**	☐ **District**	☒ **Federal**	☐ **Indian**	☐ **Municipal**	☐ **State** ☐ **Other**
6. North American Industry Classification System (NAICS) Code(s) for the Site (See instructions on page 26)	**A.** *92811*			**B.** *54171*				
	C.			**D.**				
7. Site Mailing Address (See instructions on page 27)	**Street or P.O. Box:** *P.O. Box 5400, Sandia Site Office*							
	City, Town, or Village: *Albuquerque*							
	State: *NM*							
	Country: *USA*			**Zip Code:** *87185-5400*				
8. Site Contact Person (See instructions on page 27)	**First Name:** *David*	**MI:**		**Last Name:** *Rast*				
	Phone Number: *(505)-845-5349*			**Phone Number Extension:**				
9. Legal Owner and Operator of the Site (See instructions on pages 27 and 28)	**A. Name of Site's Legal Owner:** *US Department of Energy*			**Date Became Owner (mm/dd/yyyy):** *11/01/1949*				
	Owner Type:	☐ **Private**	☐ **County**	☐ **District**	☒ **Federal**	☐ **Indian**	☐ **Municipal**	☐ **State** ☐ **Other**
	B. Name of site's Operator: *Sandia Corporation*			**Date Became Operator (mm/dd/yyyy):** *11/01/1949*				
	Operator Type:	☐ **Private**	☐ **County**	☐ **District**	☐ **Federal**	☐ **Indian**	☐ **Municipal**	☐ **State** ☒ **Other**

EPA ID No.	N	M	5	8	9	0	1	1	0	5	1	8

10. Type of Regulated Waste Activity (Mark 'X' in the appropriate boxes. See instructions on pages 28 to 32)

A. Hazardous Waste Activities

1. Generator of Hazardous Waste
(Choose only one of the following three categories)

[X] a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo) of non-acute hazardous waste; or

[ ] b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs/mo.) of non-acute hazardous waste; or

[ ] c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non acute hazardous waste

In addition, indicate other generator activities (check all that apply)

[ ] d. United States Importer of Hazardous Waste

[X] e. Mixed Waste (hazardous and radioactive) Generator

For Items 2 through 6, check all that apply:

[ ] **2. Transporter of Hazardous Waste**

[X] **3. Treater, Storer, or Disposer of Hazardous Waste (at your site)** Note: A hazardous waste permit is required for this activity.

[ ] **4. Recycler of Hazardous Waste (at your site)** Note: A hazardous waste permit may be required for this activity.

5. Exempt Boiler and/or Industrial Furnace

[ ] a. Small Quantity On-site Burner Exemption

[ ] b. Smelting, Melting and Refining Furnace Exemption

[ ] **6. Underground Injection Control**

B. Universal Waste Activities *None*

1. Large Quantity Handler Of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste generated and/or accumulated at your site. (check all boxes that apply):

		Generated	Accumulated
a.	Batteries	[ ]	[ ]
b.	Pesticides	[ ]	[ ]
c.	Thermostats	[ ]	[ ]
d.	Lamps	[ ]	[ ]
e.	Other (specify) _____	[ ]	[ ]
f.	Other (specify) _____	[ ]	[ ]
g.	Other (specify) _____	[ ]	[ ]

[ ] **2. Destination Facility for Universal Waste:**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities *None*

1. Used Oil Transporter – Indicate Type(s) of Activity(ies)

[ ] a. Transporter

[ ] b. Transfer Facility

2. Used Oil Processor and/or Re-refiner – Indicate Type(s) of Activity(ies)

[ ] a. Processor

[ ] b. Re-refiner

[ ] **3. Off-Specification Used Oil Burner**

4. Used Oil Fuel Marketer – Indicate Type(s) of Activity

[ ] a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

[ ] b. Marketer Who First Claims the Used Oil Meets the Specifications

11. Description of Hazardous Wastes (See instructions on page 33) *(n/a per instructions)*

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

EPA ID No.	N	M	5	8	9	0	1	1	0	5	1	8

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at you site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.

12. Comments (See instructions on Page 33)

None

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. **(See instructions on page 33)**

Signature of owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
	Owner: Patty Wagner, Manager, US Department of Energy, Sandia Site Office	
	Co-Operator: Patty Wagner, Manager, US Department of Energy, Sandia Site Office	
	Co-Operator: Les E. Shephard, Vice President, Energy, Information, and Infrastucture Surety, Sandia Corporation	

APPENDIX A

ACTIVE ENVIRONMENTAL PERMITS

This page intentionally left blank.

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/04

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
SEWER WASTEWATER				
General	2069 A-6	7/1/03	12/31/07	COA
General	2069 F-6	08/01/03	01/31/08	COA
Microelectronics Development Laboratory	2069 G-5	06/01/02	05/31/05	COA
General	2069 I-4 Renewal Submitted	10/14/03	extended	COA
General	2069 K-4	03/01/02	10/31/04	COA
SURFACE DISCHARGE				
Pulsed Power Development Facilities (Discharge Plan)	DP-530	09/21/01	09/21/06	NMED
STORM WATER				
National Pollution Discharge Elimination System "Multi-sector General" Permit	NMR05A961	02/01	09/30/05	EPA
Storm Drain, Sanitary Sewer, and Domestic Water System Modernization	NMR10B507	06/29/99	08/04	EPA
NPDES construction permit for the Joint Computational Engineering Laboratory	NM0002377	04/20/02	03/04	EPA
MESA	NM0002376	01/28/02	07/31/09	EPA
Aerial Cable Facilities Renovations	[b]	3/04	2/05	EPA
Center for Integrated Nanotechnologies	[b]	10/03	6/06	EPA
SCA/CUB	[b]	9/02	8/03	EPA
ECOLOGICAL				
New Mexico Department of Game and Fish, for Scientific/Educational Purposes, Authorization for Taking of Protected Wildlife	2931	01/01/02	12/31/02 [a]	New Mexico Department of Game and Fish
Fish and Wildlife Special Purpose Salvage Permit (for migratory birds)	MB040780-0	05/30/01	12/31/03	U.S. Fish and Wildlife Service
UNDERGROUND STORAGE TANKS				
9,750 gal emergency generator fuel	6383	07/1/03	06/30/04	NMED, UST Bur.
20,000 gal oil storage tank	6384	07/1/03	06/30/04	NMED, UST Bur.
20,000 gal oil storage tank	6385	07/1/03	06/30/04	NMED, UST Bur.

NOTE:
[a] Applied for permit renewal, not yet received.
[b] Permit number not issued yet.
COA = City of Albuquerque
NMED = New Mexico Environment Department
EPA = U.S. Environmental Protection Agency
UST Bur. = Underground Storage Tank Bureau

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/04 (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
ABOVEGROUND STORAGE TANKS				
1,024,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
508,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
213,898 gal storage tank	[b]	07/01/03	06/30/04	NMED
209,421 gal storage tank	[b]	07/01/03	06/30/04	NMED
45,490 gal storage tank	[b]	07/01/03	06/30/04	NMED
44,129 gal storage tank	[b]	07/01/03	06/30/04	NMED
10,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
10,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
10,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
75,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
75,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
75,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
250,000 gal storage tank	[b]	07/01/03	06/30/04	NMED
25,000 gal storage tank	[b]	07/01/03	06/30/04	NMED

NOTE:
[b] Permit number not issued yet.
NMED = New Mexico Environment Department

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/04 (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
RCRA				
RCRA Part B Operating Permit for the Hazardous Waste Management Facility Module I - General Permit Conditions Module II - General Facility Conditions Module III - Containers	NM5890110518-1	08/06/92	08/06/02 [c]	NMED
RCRA Part B Operating Permit Module IV - Hazardous and Solid Waste Amendments Portion for Solid Waste Management Units	NM5890110518-1	08/26/93	09/20/02 [c]	EPA/NMED
RCRA Part B Operating Permit for the Thermal Treatment Facility Module I - General Permit Conditions Module II - General Facility Conditions Module III - Containers	NM5890110518-2	12/04/94	12/04/04 [c]	NMED
General Part A Permit Request Storage and/or treatment of the hazardous component of mixed waste at ten waste management Units.	NM5890110518	First submitted 8/90 Rev. 5, 04/16/03	Pending Review (No expiration date)	NMED
Class III Permit Modification for the Management of Hazardous Remediation Waste in the Corrective Action Management Unit (CAMU), Technical Area III	NM5890110518	09/25/97	09/20/02 [c] 4/19/04 [d]	NMED
Comprehensive Part B Permit Request Storage and/or treatment of RCRA-regulated waste at nine waste management Units.	NM5890110518	02/06/02 [c]		NMED
TSCA				
Risk-Based Approval Request under 40 CFR 761.61(c); Risk-Based Method for Management of PCB Materials; Chemical Waste Landfill and CAMU		06/26/02	No expiration date[d]	EPA

NOTE:

[a] Applied for permit renewal; not yet received

[c] Submitted application for renewal on 02/06/2002, undergoing NMED review. Application has been revised in response to NMED comments.

[d] CAMU closure report submitted in 4/19/04, undergoing agency review.

EPA = U.S. Environmental Protection Agency
NMED = New Mexico Environment Department
RCRA = Resource Conservation and Recovery Act
TSCA = Toxic Substances Control Act

Sandia National Laboratories/New Mexico
Active Environmental Permits as of 03/31/04 (Continued)

Permit Type and/or Facility Name	Permit Number	Issue Date	Expiration Date	Regulatory Agency
AIR (Open Burn Permits)				
Fire Extinguisher (Fire Training)		[e]		COA
Burn Site		[e]		COA
Burn Site/Sled Track		[e]		COA
Burn Site (Large Pool Fire Tests)		[e]		COA
Explosive Testing		[e]		COA
9920 and Sled Track		[e]		COA
Thermal Treatment Facility (permit must be submitted to NMED within 30 days of receipt)	76-OB-5-2003	03/18/04	12/31/04	COA
AIR (Permits & Registrations)				
Hammermill Facility	144	08/28/85	Biennial update	COA
Fire Laboratory used for the Authentication of Modeling and Experiments	196	05/19/88	Registration[†]	COA
Neutron Generator Facility	374- MI	07/17/98	Biennial update	COA
Neutron Generator Recertification	396	05/07/96	Biennial update	COA
Standby diesel generators (four)	402	05/07/96	Biennial update	COA
Radioactive & Mixed Waste Management Facility	415- M1	11/24/99	Biennial update	COA
Isotope Production Facility	428	07/08/96	Biennial update	COA
Title V Operating Permit	515 (pending)	Submitted [a] 03/1/96	Pending (5 yr renewal)	COA
Classified Waste Landfill	560	12/17/96	Biennial update	COA
Classified Waste Landfill	NESHAP	06/96	Approval [††]	EPA
Advanced Manufacturing Processes Laboratory	646	01/23/97	Biennial update	COA
Portable Burn Pools	647	05/05/97	Biennial update	COA
Chemical Waste Landfill (CWL) Excavation	540	5/19/99	Registration [†]	COA
High Energy Radiation Megavolt Electron Source-III	NESHAP	6/29/88	Approval [††]	EPA
Advanced Manufacturing Prototype Facility	1406	11/6/00	Registration [†]	COA
Microelectronics Development Laboratory	1678	12/23/02	Biennial update	COA
Emergency Generator	924	5/5/98	Biennial update	COA
Processing and Environmental Technology Laboratory	925-M1	03/05/01	Biennial update	COA
Processing and Environmental Technology Laboratory	936	pending registration		COA

NOTE:

[a] Applied for permit renewal; not yet received
[e] COA issues open burn permits annually. Sandia/DOE applied for this permit for calendar year 2004.
[†] Registration = Certificate, no permit required.
[††] Approval = EPA does not issue a permit.
EPA = U.S. Environmental Protection Agency

APPENDIX B

LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, ANNUAL QUANTITIES, FIGURES, AND PHOTOGRAPHS

This page left intentionally blank.

Explanation of Process Code Listings and Design Capacities at the Hazardous Waste Management Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]		
Container storage area	59,950 gallons	Building 958
Container storage area	7,590 gallons	Building 959
Container storage area	5,000 gallons	Modular Storage Building 958B
Container storage area	5,000 gallons	Modular Storage Building 958C
Total S01	**7,7540 gallons**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Thermal Treatment Facility

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 5 X01 Treatment: Thermal [b]			
Thermal treatment of explosive waste	20.8 gallons/batch 190 pounds/batch	9,500 pounds/year	South of Building 6715
Total X01	**20.8 gallons/batch** **190 pounds/batch**	**9,500 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Existing Radioactive and Mixed Waste Management Facility (RMWMF) and Future Consolidated Waste Management Facility (CWMF)

Description	Existing RMWMF Capacity	Future CWMF Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]			
Container storage area	13,420 gallons	57,070 gallons	Building 6920
Container storage area	7,810 gallons	7,810 gallons	Building 6921
Container storage area	83,160 gallons	83,160 gallons	Building 6925
Container storage area	83,160 gallons	73,419 gallons	Building 6926
Container storage area	1,100 gallons	1,100 gallons	Modular Storage Building TP150
Container storage area	1,100 gallons	1,100 gallons	Modular Storage Building TP153
Container storage area	- -	5,000 gallons	Additional Modular Storage Building
Container storage area	- -	5,000 gallons	Additional Modular Storage Building
Container storage area	19,800 gallons	15,840 gallons	Asphalt area N, E, and W of Building 6920
Total S01	**209,550 gallons**	**322,919 gallons**	

Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Existing Radioactive and Mixed Waste Management Facility (RMWMF) and Future Consolidated Waste Management Facility (CWMF) (Continued)

Description	Capacity (Existing RMWMF and Future CWMF)	Annual Quantity (Existing RMWMF and Future CWMF)	Associated Structure/Building
Line 3 T04 Other Treatment (in containers) [c, d, e]			
Chemical deactivation	65 gallons/day	3,000 gallons/year	Building 6920, Building 6921
Macroencapsulation	840 gallons/day	6,000 gallons/year	Building 6920, Building 6921, Building 6925
Stabilization	550 gallons/day	6,000 gallons/year	Building 6920, Building 6921
Thermal deactivation	10 pounds/hour	150 pounds/year	Building 6920, Building 6921
Amalgamation	2 pounds/hour	100 pounds/year	Building 6920, Building 6921
Total T04	**780 gallons/day and 12 pounds/hour**	**15,000 gallons/year and 250 pounds/year**	

Description	Capacity (Existing RMWMF and Future CWMF)	Annual Quantity (Existing RMWMF and Future CWMF)	Associated Structure/Building
Line 4 T04 Other Treatment (physical treatment) [f]			
Physical treatment	20 pounds/hour	4,000 pounds/year	Building 6920, Building 6921
Total T04	**20 pounds/hour**	**4,000 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings and Design Capacities at the High Bay Waste Storage Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage[a]		
Container storage area	100,320 gallons	Building 6596
Total S01	**100,320 gallons**	

See footnotes at end of section

Explanation of Process Code Listings, Design Capacities, and Annual Quantities at the Auxiliary Hot Cell Facility

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]		
Container storage area	3,520 gallons	Building 6597
Storage silos	1,456 gallons	Building 6597
Hot cell	900 gallons	Building 6597
Fume hood	110 gallons (capacity included in work area)	Building 6597
Work area	2,200 gallons	Building 6597
Total S01	**6,976 gallons**	

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 2 T04 Other Treatment (in containers) [c, d]			
Chemical deactivation	55 gallons/day	2,000 gallons/ year	Building 6597
Macroencapsulation	55 gallons/day	6,000 gallons/year	Building 6597
Stabilization	55 gallons/day	2,000 gallons/year	Building 6597
Total T04	**165 gallons/day**	**10,000 gallons/year**	

Description	Capacity	Annual Quantity	Associated Structure/Building
Line 4 T04 Other Treatment (physical treatment) [f]			
Physical treatment	20 pounds/hour	4,000 pounds/year	Building 6597
Total T04	**20 pounds/hour**	**4,000 pounds/year**	

See footnotes at end of section

Explanation of Process Code Listings and Design Capacities at the Manzano Storage Bunkers

Description	Capacity	Associated Structure/Building
Line 1 S01 Container Storage [a]		
Container storage area	50,160 gallons	Type B Bunkers Bunkers 37034 and 37063
Container storage area	50, 160 gallons	Type C Bunkers Bunkers 37078 and 37118
Container storage area	55,440 gallons	Type D Bunkers Bunkers 37045, 37055, and 37057
Total S01	**155,760 gallons**	

See footnotes at end of section

Footnotes for Process Codes and Capacities

[a] Wastes are stored in a variety of containers, including large boxes, 55-gallon drums, and smaller containers.

[b] The quantity of waste undergoing treatment at any one time cannot exceed the 20.8-gallon capacity of the burn pan.

[c] Wastes are treated by stabilization, chemical deactivation, and amalgamation in a variety of containers, including 55-gallon drums, 5-gallon buckets, laboratory glassware, and other containers as appropriate for the process.

[d] Wastes are placed in suitable containers and macroencapsulated. The container size is determined by the quantity of waste requiring treatment and the macroencapsulation process. Containers include 7 ft X 4 ft X 4 ft boxes (equivalent volume of 840 gallons), 55-gallon drums, and smaller containers. Liquid wastes are not treated through macroencapsulation; the volume of waste treated is equivalent to the number of gallons listed.

[e] Wastes are placed in the thermal deactivation equipment and treated. The time required to complete treatment depends on the waste.

[f] Physical separation volumes depend on the size of the equipment or other item undergoing treatment (e.g., size reduction, separation). Volumes vary widely.

LOCATION-SPECIFIC PROCESS CODE LISTINGS, DESIGN CAPACITIES, AND ANNUAL QUANTITIES

FIGURES

PHOTOGRAPHS

Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-iii
LIST OF FIGURES ..... SW-iv
LIST OF APPENDICES ..... SW-v
LIST OF MODULES ..... SW-vi
ACRONYMS AND ABBREVIATIONS ..... SW-vii
DEFINITIONS ..... SW-x
1.0 GENERAL SITE OPERATIONS SW-8
1.1 General Unit Operations SW-8
1.1.1 Operation of Containment Systems SW-8
1.1.2 Requirements for Ignitable, Reactive, and Incompatible Waste SW-9
1.1.2.1 Measures to Prevent Accidental Ignition or Reaction SW-9
1.1.2.2 Precautions to Prevent Uncontrolled Reactions SW-10
1.1.3 Preparedness and Prevention SW-11
1.1.3.1 Required Equipment SW-11
1.1.3.2 Testing and Maintenance of Equipment SW-12
1.1.3.3 Access to Communications or Alarm System SW-12
1.1.4 Hazards Prevention SW-13
1.1.4.1 Preventing Hazards in Unloading SW-13
1.1.4.2 Preventing Runoff or Flooding SW-13
1.1.4.3 Preventing Contamination of Water Supplies SW-14
1.1.4.4 Mitigating Effects of Equipment Failure and Power Outages SW-14
1.1.4.5 Preventing Undue Exposure SW-15
1.1.4.6 Preventing Releases to the Atmosphere SW-15
1.2 Container Storage SW-18
1.2.1 Container Types and Labeling SW-18
1.2.2 Container Handling SW-18
1.2.2.1 Condition of Containers SW-18
1.2.2.2 Aisle Space and Storage Configuration SW-19
1.2.2.3 Compatibility of Waste with Containers SW-19
1.2.2.4 Presence of Liquids in Containers SW-20
2.0 SITE DESCRIPTION SW-21
3.0 WASTE ANALYSIS PLAN SW-22
4.0 INSPECTION PLAN SW-23
5.0 PERSONNEL TRAINING PLAN SW-24
6.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN SW-25
7.0 CLOSURE PLAN SW-26
8.0 TREATMENT SW-27
8.1 Handling and Treatment of Unstable Wastes SW-27
8.2 Preventing Releases to the Atmosphere SW-27
9.0 RECORDKEEPING SW-30
9.1 Hazardous Waste Report SW-32
9.2 Unmanifested Waste Report SW-32
9.3 Additional Reports SW-33

TABLE OF CONTENTS (Concluded)

10.0 OTHER FEDERAL LAWS SW-34
11.0 CORRECTIVE ACTION SW-36
12.0 CERTIFICATION SW-37
13.0 REFERENCES SW-38

LIST OF TABLES

Table No.	Title
1	Resource Conservation and Recovery Act-Regulated Waste Management Units Included in Part 2 of Comprehensive Part B Permit Request
2	Regulatory References and Corresponding Permit Renewal Request/Application Location
3	Cultural Properties Used by Sandia/DOE on Kirtland Air Force Base

LIST OF FIGURES

Figure No.	Title
1	Sandia National Laboratories/New Mexico Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units in Relation to Kirtland Air Force Base

LIST OF APPENDICES

Appendix	Title
A	Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
B	Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
C	Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
D	Site-Wide Personnel Training Plan for Sandia National Laboratories/ New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
E	Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units
F	Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

LIST OF MODULES

Module	Title
I	HWMF-Hazardous Waste Management Facility
II	TTF-Thermal Treatment Facility
III	RMWMF/CWMF-Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility
IV	Reserved
V	AHCF-Auxiliary Hot Cell Facility
VI	MSB-Manzano Storage Bunkers

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	microgram(s) per cubic meter
20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
A/BCAQCB	Albuquerque/Bernalillo County Air Quality Control Board
AHCF	Auxiliary Hot Cell Facility
ALARA	as low as reasonably achievable
ARPA	Archeological Resources Protection Act
ASTM	American Society for Testing and Materials
CMU	concrete masonry unit
CWMF	Consolidated Waste Management Facility
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DQO	data quality objective
DR	disposal request
EC	Emergency Coordinator
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ER	Environment Restoration
ERO	Emergency Response Organization
^{O}F	degree(s) Fahrenheit
ft	foot/feet

ACRONYMS AND ABBREVIATIONS (Continued)

ft^2	square foot/feet
ft^3	cubic foot/feet
HEPA	high efficiency particulate air
HSWA	Hazardous and Solid Waste Amendments
HWMF	Hazardous Waste Management Facility
IC	Incident Commander
ICS	Incident Command System
ID	inner diameter
in.	inch(es)
KAFB	Kirtland Air Force Base
KOP	knowledge of process
lb/ft^2	pound(s) per square foot/feet
LDR	land disposal restriction
m^3	cubic meter(s)
mi	mile(s)
mph	mile(s) per hour
MSB	Manzano Storage Bunkers
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NMED	New Mexico Environment Department
OKSO	Office of Kirtland Site Operations
ppmw	part(s) per million by weight

ACRONYMS AND ABBREVIATIONS (Concluded)

PPE	personal protective equipment
psi	pounds per square inch (pressure)
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
R&D	research and development
RMWMF	Radioactive and Mixed Waste Management Facility
Sandia	Sandia Corporation
SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	Technical Area
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USC	United States Code
USFS	U.S. Forest Service
VOC	volatile organic compound
WAP	waste analysis plan
WMA	waste management area

DEFINITIONS

Characterization: The identification of hazardous characteristics or constituents of waste, using sampling and analysis, acceptable knowledge, or a combination of chemical analysis and acceptable knowledge.

Emergency: Any imminent or existing fire, explosion, or unplanned sudden or nonsudden release of Resource Conservation and Recovery Act (RCRA)-regulated hazardous waste or hazardous waste constituents to air, soil, or surface water that significantly threatens human health or the environment outside the Unit.

RCRA-Regulated Waste: For the purposes of this permit renewal request/application and Unit-specific modules, a waste that meets the regulatory definition of either hazardous waste or hazardous/radioactive mixed waste.

RCRA-Regulated Waste Management Area (WMA): For the purposes of this permit renewal request/application and Unit-specific modules, an area used for the treatment or storage of RCRA-regulated waste within a RCRA-regulated Waste Management Unit.

RCRA-Regulated Waste Management Unit (Unit): For the purposes of this permit renewal request/application and Unit-specific modules, a specific operational area subject to a RCRA permit that is used for the treatment and/or storage of RCRA-regulated waste. The Units that are the subjects of this permit renewal request/application are described in Unit-specific modules.

Regulated Unit: A surface impoundment, waste pile, land treatment unit, or landfill that received hazardous waste after July 26, 1982.

SANDIA NATIONAL LABORATORIES/NEW MEXICO GENERAL PART B PERMIT RENEWAL REQUEST/APPLICATION

This "Sandia National Laboratories/New Mexico (SNL/NM) General Part B Permit Renewal Request/Application," hereinafter referred to as the General Part B, is submitted by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, to address requirements applicable to Resource Conservation and Recovery Act (RCRA)-regulated waste storage and treatment operations at SNL/NM RCRA-regulated waste management units (Units) (Figure 1). The U.S. Environmental Protection Agency (EPA) Identification Number for SNL/NM is NM5890110518.

Sandia National Laboratories/New Mexico (SNL/NM) is located on Kirtland Air Force Base (KAFB) southeast of Albuquerque, New Mexico. SNL/NM consists of five technical areas (TAs) and several remote testing areas situated on the 80-square-mile KAFB. Sandia generates and manages wastes that are regulated under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code (NMAC) Title 20, Chapter 4. In this comprehensive Part B permit request, these wastes are referred to as RCRA-regulated wastes (i.e., wastes that meet the regulatory definition of hazardous or mixed wastes). RCRA-regulated wastes are generated during SNL/NM operations and ongoing corrective actions for solid waste management units (SWMUs). The corrective actions are conducted under the SNL/NM Environmental Restoration (ER) Project.

There are 11 RCRA-regulated waste management units (Units) included in this comprehensive Part B permit request. Nine of the Units (listed in Table 1) are used for management of wastes from ongoing operations and from the ER project. These units are addressed in this part (Part 2) of the comprehensive Part B permit request. One of the remaining units is a corrective action management unit (containment cell) used exclusively for management of remediation wastes generated through the ER project. It was closed in 2003. The other unit is a landfill that was operated under interim status and is undergoing closure. Sandia/DOE will conduct post-closure care and maintenance at the containment cell and the landfill; both Units are addressed in Part 5 of the comprehensive Part B permit request. Three additional units will be undergoing closure under interim status and will not require post-closure care. They are included in Part 1.

The information in Part 2 is separated into site-wide and Unit-specific information to minimize redundancy. Part 2 information for the Units listed in Table 1 includes:

- General information (the General Part B) that serves as an "umbrella" document addressing the general requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03]. 20 NMAC 4.1.500 and .900 adopt, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270). Information that is applicable to most or all of the Units is included in the General Part B.

  Appendices containing site-wide information addressing a specific topic (e.g., waste analysis, training, or closure).

Table 1
Resource Conservation and Recovery Act – Regulated Waste Management Units Included in Part 2 of Comprehensive Part B Permit Request

Name	Acronym	Location, Size	Types of Operations	Types of Waste	Operating Status	Permit Status
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. 1.35 acres	Storage, Repackaging	All wastes listed in General Part A	Existing, operational	Permit expired August 6, 2002. Submitted renewal request February 6, 2002. Requesting that permit be updated and renewed for continued operation.
Thermal Treatment Facility	TTF	Northern part of TA-III. 196 square feet	Treatment	Ignitable, reactive, toxic, and listed wastes	Existing, on standby	Permit expires November 4, 2004. Submitted renewal request February 6, 2002. Requesting that permit be updated and renewed for continued operation.
Radioactive and Mixed Waste Management Facility/ Consolidated Waste Management Facility[a]	RMWMF/ CWMF	Southeast corner of TA-III. 3.11 acres	Storage, Treatment, Repackaging	All wastes listed in General Part A	Existing, operational	Interim status. Requesting that permit be issued using updated information provided in this application.
Auxiliary Hot Cell Facility	AHCF	TA-V. 5578 square feet	Storage, Treatment, Repackaging	All wastes listed in General Part A	Existing, expected to start operations in 2005	Added under interim status. Requesting that permit be issued using information provided in this application.
Manzano Storage Bunkers (set of 5 Units)	MSB	In Manzano Area on KAFB. 0.4 acres occupied by 5 bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	All wastes listed in General Part A	Existing, operational	Interim status. Requesting that permit be issued using updated information provided in this application.

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

- Unit-specific Part B modules addressing Unit-specific requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [10-1-03]. There is one module for the set of five Manzano Storage Bunkers, and one module for each of the other four Units listed in Table 1. For clarity and consistency, the information in each Unit-specific Part B module is arranged in the same general order as the information in the General Part B.

Together, the information in this General Part B, the appendices, and each Unit-specific Part B module address the applicable regulatory requirements for that Unit.

The information in this General Part B and in the Unit-specific modules is arranged as follows:

- General Unit description and operations, including preparedness and prevention – Section 1.0
- Site description, including features, security, and access control – Section 2.0 and Appendix A
- Waste analysis – Section 3.0 and Appendix B
- Inspections – Section 4.0 and Appendix C
- Training – Section 5.0 and Appendix D
- Emergency response and contingency plan – Section 6.0 and Appendix E
- Closure – Section 7.0 and Appendix F
- Treatment – Section 8.0
- Recordkeeping – Section 9.0

Sandia/DOE are also submitting a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0" hereinafter referred to as the General Part A (SNL/NM, 2004), with this General Part B. The General Part A is included as Part 1 of this comprehensive Part B permit request and serves as a companion document to this General Part B. The General Part A identifies the RCRA-regulated waste management operating Units at SNL/NM as of March 31, 2003, that are or will be subject to:

- 20 NMAC 4.1.500/40 CFR 264 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270 [10-1-03]. These nine Units are listed in Table 1.
- 20 NMAC 4.1.600/40 CFR 265 [10-1-03]. These three Units will be closed under interim status and are not included in this General Part B.

In the General Part A, this General Part B, the appendices, and the Unit-specific modules, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., the Hazardous Waste Management Facility). The term "facility," as it appears in this context, is used only to denote building or Unit names and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

In the Waste Analysis Plan (Appendix B) and in the rest of this General Part B, the personnel associated with a RCRA-regulated waste at a given point during management at SNL/NM may sometimes be referred to as the "generator" (e.g., the "generator" completes a disposal request). The term "generator," as it appears in this context, is used only to denote an individual person and does not imply the regulatory meaning of "generator" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], particularly with respect to hazardous waste determination as required in 20 NMAC 4.1.300/40 CFR 262.11 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], Sandia Corporation is a "generator" and a "person" responsible for determining whether a waste is subject to regulation in accordance with 20 NMAC 4.1.300/40 CFR 262.11 [10-1-03]. SNL/NM is a large research facility, and many individuals (including those employed through contract to Sandia Corporation) are involved with generation and subsequent management of RCRA-regulated wastes. These include personnel performing research and other waste-generating activities, and personnel performing environment, safety, and health activities (including waste management) to support Sandia operations and comply with regulatory requirements. Hazardous waste determination at SNL/NM is a collaborative effort between the individuals involved with the generation of RCRA-regulated waste and the Unit personnel. This approach is consistent with the process described in EPA's clarifying memo (Cotsworth, 2002).

Table 2 provides a list of regulatory references and the corresponding section locations in this General Part B.

Table 2
Regulatory References and Corresponding
Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§270.14(b)(1)	General facility description	Appendix A[a]
§270.14(b)(2)	Chemical and physical analyses	Appendix B[a]
§270.14(b)(3)	Waste analysis plan	Appendix B[a]
§264.13(b)	Written waste analysis plan	Appendix B[a]
§264.13(c)	Off-site waste analysis requirements	Appendix B[a]
§270.14(b)(4)	Security procedures and equipment	Appendix A[a]
§264.14	Security	Appendix A[a]
§270.14(b)(5)	General inspection schedule	Appendix C[a]
§264.15(b)	Written inspection schedule	Appendix C[a]
§264.174	Containers	1.2, Appendix C[a]
§264.602	Miscellaneous units	Appendix C[a]
§264.1086	Standards: Containers	1.2, Appendix C
§264.1088	Inspection and monitoring requirements	4.0, Appendix C[a]
§270.14(b)(6)	Request for waiver from preparedness and prevention requirements of Part 264, Subpart C	NA
§270.14(b)(7)	Contingency plan	Appendix E[a]
§270.14(b)(8)	Preparedness and prevention requirements	1.1.3[a], 1.1.4[a]
§270.14(b)(8)(i)	Preventing hazards in unloading operations	1.1.4.1[a]
§270.14(b)(8)(ii)	Preventing runoff/flooding	1.1.4.2[a]
§270.14(b)(8)(iii)	Preventing contamination of water supplies	1.1.4.3[a]
§270.14(b)(8)(iv)	Mitigating effects of equipment failure and power outages	1.1.4.4[a]
§270.14(b)(8)(v)	Preventing undue exposure of personnel	1.1.4.5[a]
§270.14(b)(8)(vi)	Preventing releases to the atmosphere	1.1.4.6[a]
§270.14(b)(9)	Preventing accidental ignition or reaction	1.1.2.1[a]
§264.17	General requirements for ignitable, reactive, or incompatible wastes	1.1.2[a]
§270.14(b)(10)	Traffic pattern, volume, and controls	Appendix A[a]
§270.14(b)(11)	Facility/unit location information	Appendix A[a]
§270.14(b)(11)(i)	Seismic standard applicability [264.18(a)]	Appendix A[a]
§264.18(a)	Seismic considerations	Appendix A
§270.14(b)(11)(ii)	Seismic standard requirements	Appendix A[a]
§264 Appendix VI	Political jurisdictions requiring compliance with 264.18(a)	Appendix A
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	Appendix A[a]
§270.14(b)(11)(iii)	100-year floodplain standard	Appendix A
§270.14(b)(11)(iv)	Floodplain requirements	NA
§270.14(b)(11)(v)	Plan to show how the facility will be brought into compliance with 264.18(b)	NA
§270.14(b)(12)	Personnel training program	Appendix D[a]

Refer to footnotes at end of table.

Table 2 (Continued)
Regulatory References and Corresponding Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§264.16	Personnel training	Appendix D[a]
§270.14(b)(13)	Closure and post-closure plans	Appendix F[a]
§264.112	Closure plan	Appendix F[a]
§264.118	Post-closure plan	Appendix F[a]
§264.178	Closure—containers	Appendix F[a]
§264.601	Environmental performance standards—miscellaneous units	Module II
§264.603	Post-closure care—miscellaneous units	Appendix F
§270.14(b)(14)	Post-closure notices (264.119)	Appendix F
§264.119	Post-closure notices	Appendix F
§270.14(b)(15)	Closure cost estimate (264.142)	Appendix F
	Financial assurance (264.143)	Appendix F
§264.142	Cost estimate for closure	Appendix F
§264.143	Financial assurance for closure	Appendix F
§270.14(b)(16)	Post-closure cost estimate (264.144)	Appendix F
	Post-closure care financial assurance (264.145)	Appendix F
§264.144	Cost estimate for post-closure care	Appendix F
§264.145	Financial assurance for post-closure care	Appendix F
§270.14(b)(17)	Liability insurance (264.147)	Appendix F
§264.147	Liability requirements	Appendix F
§270.14(b)(18)	Proof of financial coverage (264.149-150)	Appendix F
§270.14(b)(19)	Topographic map requirements	Appendix A[a]
§270.14(b)(19)(i)	Map scale and date	Appendix A[a]
§270.14(b)(19)(ii)	100-year floodplain area	Appendix A[a]
§270.14(b)(19)(iii)	Surface waters	Appendix A[a]
§270.14(b)(19)(iv)	Surrounding land uses	Appendix A[a]
§270.14(b)(19)(v)	Wind rose	Appendix A[a]
§270.14(b)(19)(vi)	Map orientation/north arrow	Appendix A[a]
§270.14(b)(19)(vii)	Legal boundaries	Appendix A[a]
§270.14(b)(19)(viii)	Access controls	Appendix A[a]
§270.14(b)(19)(ix)	Wells (injection and withdrawal)	Appendix A
§270.14(b)(19)(x)	Buildings or other structures	Appendix A
§270.14(b)(19)(xi)	Barriers—drainage or flood control	Appendix A[a]
§270.14(b)(19)(xii)	Location of operational units	Appendix A
§270.14(b)(20)	Other federal laws (270.3)	10.0
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(b)(22)	Summary of pre-application meeting	Overview
§270.14(c)	Groundwater monitoring requirements	Appendix A[b]
§264.90(b)	Exemptions from regulation of releases	NA
§270.14(d)	Information requirements for solid waste management units	11.0[c], Part 4
§270.15	Specific information requirements—containers	1.2[a]
§264.170	Subpart I applicability	1.1[a]

Refer to footnotes at end of table.

Table 2 (Concluded)
Regulatory References and Corresponding Permit Renewal Request/Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§264.175	Containment	1.1, 1.2[a]
§264.176	Special requirements for ignitable or reactive waste	1.1.2[a]
§264.177	Special requirements for incompatible waste	1.1[a]
§264.17	General requirements for ignitable, reactive, or incompatible wastes	1.1[a]
§270.23	Specific information requirements—miscellaneous units	Module II[a]
§264.600	Subpart X applicability	Module II
§264.601	Environmental performance standards	Module II
§264.602	Monitoring analysis, inspection, response, reporting, and corrective action	Module II
§270.27	Specific information requirements—air emission controls for tanks, surface impoundments, and containers	1.1, 1.2[a]
§264 Subpart AA	Air emission standards for process vents	1.1.4.6
§264 Subpart BB	Air emission standards for equipment leaks	1.1.4.6
§264 Subpart CC	Air emission standards for tanks, surface impoundments, and containers	1.1.4.6

[a] Unit-specific information is provided in Unit-specific modules.
[b] Groundwater monitoring for regulated units is addressed in Part 3 of this comprehensive Part B permit request package.
[c] Corrective action is addressed in Parts 4 and 5 of this comprehensive Part B permit request package. Solid waste management units are discussed in Part 4. Operation of the waste management units associated with corrective action is addressed in Part 5.
NA = not applicable

1.0 GENERAL SITE OPERATIONS

This section provides an overview of management activities involving RCRA-regulated wastes at the Units addressed in this General Part B.

The SNL/NM Units are used to store and/or treat RCRA-regulated wastes bearing EPA Hazardous Waste Numbers listed in the General Part A. Unless otherwise specified in a Unit-specific module, any of the wastes listed in the General Part A may be managed at any Unit.

The following general information applicable to the Units addressed in this General Part B is provided in this section:

- General Unit operations; containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and
- Container storage practices, including air emission controls. Sandia/DOE do not manage RCRA-regulated wastes in tanks at any Unit.

The general information provided in this section, together with the Unit-specific information provided in Modules I through VI, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264 [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14, 270.15, and 270.23 [10-1-03].

1.1 General Unit Operations

The following sections provide an overview of the general Unit operations applicable to the Units addressed in this General Part B. General Unit operations include containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; and hazards prevention.

1.1.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15(a)(5); 20 NMAC 4.1.500/40 CFR 264.175[b][5])

20 NMAC 4.1.500/40 CFR 264.175(b)(1) [10-1-03] requires that containment systems be maintained in leak proof and fully operable conditions. 20 NMAC 4.1.500/40 CFR 264.175(b)(2) and (3) [10-1-03], respectively, require that secondary containment systems be designed to: 1) contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater; and 2) prevent contact between containers and spilled material. 20 NMAC 4.1.500/40 CFR 264.175(b)(4) requires that run-on and run-off be prevented. These features of containment systems at each Unit are described in Section 1.0 of each Unit-specific module.

20 NMAC 4.1.500/40 CFR 264.175(b)(5) requires that secondary containment systems be managed to prevent overflow. Liquids that might accumulate at an SNL/NM Unit are contained within a secondary containment system, as described in each Unit-specific module. The

containment system is sufficiently impervious to contain leaks, spills, or accumulated precipitation until the liquid is removed, as described below.

Unit personnel begin taking action to evaluate and remove accumulated liquids upon discovery to prevent overflow. Personnel evaluate the liquids for two purposes: to determine the most appropriate method of removing the liquid from the containment; and to characterize the removed liquid for appropriate further management.

Personnel attempt to find the source of liquids that accumulate in secondary containment for stored containers of RCRA-regulated wastes. If the source can be clearly identified (e.g., a leaking container in a small secondary containment area) personnel characterize the liquid based on knowledge of the source, as described in Appendix B, Section B.1.3.12, remove it, and manage it appropriately. If the source(s) cannot be identified, personnel may sample the liquid and characterize it as needed to determine the most appropriate method of removing the liquid from the containment. The liquid is then pumped into containers or collected onto absorbent material, picked up, and placed in containers. The containerized liquid is sampled and analyzed for the parameters listed in Appendix B, Table B-2 to characterize it for further management.

Accumulated liquids or waters generated during fire suppression activities may be characterized as a newly-generated waste using acceptable knowledge or may be analyzed, as applicable, for hazardous waste constituents known to be components of the wastes involved in the fire. In either case, the liquids will be characterized using the process described above. Containers of collected liquids are also stored with adequate secondary containment.

Accumulated liquids from precipitation or snowmelt, for which there is no evidence of a release, will be discharged to the ground or to the sanitary sewer after sampling (as needed) and approval, as needed.

1.1.2 Requirements for Ignitable, Reactive, and Incompatible Waste (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[d]; 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

20 NMAC 4.1.900/40 CFR 270.14(b)(9) [10-1-03], requires a description of precautions taken to prevent accidental ignition or reaction of ignitable, reactive, or incompatible RCRA-regulated wastes as required to demonstrate compliance with 20 NMAC 4.1.500/40 CFR 264.17(c) [10-1-03]. 20 NMAC 4.1.900/40 CFR 270.15(d) [10-1-03], requires a description of procedures used to ensure compliance with 20 NMAC 4.1.500/40 CFR 264.17(b) and (c) [10-1-03], and 264.176 and 264.177.

1.1.2.1 Measures to Prevent Accidental Ignition or Reaction (20 NMAC 4.1.500/ 40 CFR 264.17[a])

At SNL/NM, appropriate measures are taken to prevent accidental ignition or reaction of ignitable and reactive RCRA-regulated wastes, as described below.

All containers are kept closed unless wastes are being added, removed, inspected, sampled, repackaged, or treated as noted in Section 1.2.2.

Ignitable and reactive wastes are labeled and separated from other wastes. Such wastes may be stored in designated WMAs at each Unit, as described in the Unit-specific modules. Open flames and welding activities are prohibited in the vicinity of ignitable or reactive wastes at all Units. If the wastes cannot be removed from the area before such activities take place, the wastes are protected by a non-combustible barrier before and during work. Hot surfaces, frictional heat, sources of sparks, and radiant heat (e.g., heat-generating wastes) are also prohibited in the vicinity of ignitable and reactive wastes. Unit personnel are not allowed to operate forklifts or other motorized equipment in the vicinity of open containers of ignitable or reactive wastes unless such equipment is designed for use in flammable environments.

Spark-proof tools may be used to open and close containers holding ignitable or reactive wastes. When large quantities of flammable or reactive liquids are transferred from one container to another, grounding procedures are typically used. During such operations, each container is connected to a grounding cable that remains in place during liquid transfer to dissipate static charge created by liquid flow.

Smoking is not allowed within any Unit. “No Smoking” signs are conspicuously placed at the entrance to each Unit, as required by 20 NMAC 4.1.500/40 CFR 264.17(a) [10-1-03].

Ignitable and reactive wastes are stored under controlled conditions as needed to prevent spontaneous combustion. For example, pyrophoric wastes (liquids or solids that can ignite in contact with air without an external ignition source) are stored in closed containers under oil or other inert liquid, or in sealed containers under an inert gas, to prevent contact with air and moisture.

Water-reactive wastes may be stored in WMAs equipped with automatic water sprinkler systems. When water-reactive wastes are present in such WMAs, Unit personnel will isolate the wastes with water-resistant barriers such as cabinets or overpack drums to keep water from coming into contact with the waste.

Buildings and areas where operations include open containers of ignitable or reactive wastes are equipped with intrinsically safe (spark-proof) electrical systems. All other buildings are equipped with electrical systems that meet applicable codes (e.g., storage of hazardous materials).

1.1.2.2 Precautions to Prevent Uncontrolled Reactions (20 NMAC 4.1.500/40 CFR 264.17[b, c], 40 CFR 264.176, 40 CFR 264.177 and 40 CFR 264.17[b])

Unit personnel rarely mix incompatible wastes together or with other materials. Personnel perform treatment of ignitable and reactive wastes at the TTF, existing RMWMF/future CWMF, and AHCF. As described in Section 8.0 of Modules II, III, and V, Unit personnel plan such activities carefully to prevent reactions that could:

- Generate extreme heat or pressure, fire or explosions, or violent reaction;
- Produce uncontrolled toxic mists, fumes, dusts, or gases;

- Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- Damage the structural integrity of the device or Unit;
- Through other like means, threaten human health or the environment.

In general, Unit personnel use characterization information for each waste (as described in Section B.3) and published data regarding chemical properties of hazardous waste constituents in the wastes (e.g., material safety data sheets [MSDSs], "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994], *Bretherick's Handbook of Reactive Chemical Hazards,* Urben, 1995) to identify potential consequences of treatment or other mixing activities. Additional information is included in each Unit-specific module.

Incompatible wastes are kept separated from each other during storage to meet the requirements of 20 NMAC 4.1.500/40 CFR 264.177(c) [10-1-03]. Incompatible wastes are not packed in the same container, and no waste is placed in a container that previously held an incompatible waste (i.e., only new and/or clean containers are used to hold RCRA-regulated wastes), as required by 20 NMAC 4.1.500/40 CFR 264.177(a) and (b) [10-1-03], 20 NMAC 4.1.500/40 CFR 264.17(b), and 20 NMAC 4.1.900/ 40 CFR 270.15(d) [10-1-03]. Additional information is included in the Unit-specific modules.

Compatibility is determined in accordance with 20 NMAC 4.1.500/40 CFR 264, Appendix V [10-1-03], or equivalent information (e.g., NIOSH Pocket Guide to Chemical Hazards).

Containers holding ignitable or reactive wastes are located at least 50 feet from the SNL/NM facility property line at all times and are protected from sources of ignition or reaction as required by 20 NMAC 4.1.500/40 CFR 264.176 [10-1-03].

1.1.3 Preparedness and Prevention (20 NMAC 4.1.900/40 CFR 270.14(b)(8) and 20 NMAC 4.1.500/40 CFR 264, Subpart C)

20 NMAC 4.1.900/40 CFR 270.14(b)(8) [10-1-03], and 20 NMAC 4.1.500/40 CFR 264, Subpart C [10-1-03], require a description of how Units will comply with preparedness and prevention requirements. The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems.

1.1.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Sandia/DOE maintain required equipment, including internal communications or alarm systems; devices to summon emergency assistance; fire control, spill control, and decontamination equipment; and adequate water volume and pressure for fire suppression equipment at each Unit.

Each Unit (except the TTF and MSB) is equipped with one or more automatic water sprinkler or dry chemical fire suppression systems. Building-specific fire suppression systems are described in Section 1.2 of each Unit-specific module.

Each Unit (except the MSB) is equipped with fire hydrants. The locations of the hydrants are shown in each Unit-specific module. Each fire hydrant meets the requirements of the Appendix B of the International Fire Code, and provides at least 1500 gallons per minute of water at 20 psi, which meets the requirements of 20 NMAC 4.1.500/40 CFR 264.32(d) [10-1-03].

A list of the required equipment, with the location and capabilities of the equipment, is provided in tables in each Unit-specific module.

1.1.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Sandia/DOE assure that communications and alarm systems and fire protection, spill control, and decontamination equipment are inspected and/or tested according to the inspection plans and schedules detailed in Appendix C of this General Part B and in Section 4.0 of each Unit-specific module. The frequency of inspection is sufficient to assure proper operation in the event of an emergency. Maintenance, repair, and replacement of emergency equipment are performed as needed.

Sandia personnel test fire suppression equipment on monthly, quarterly, and annual schedules, based on National Fire Protection Association (NFPA) 25 “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” (NFPA, 2002). Monthly tests typically include visual checks of valves and pressure gages. Quarterly tests typically include checks of water flow, switches, and alarms. Annual activities typically include valve inspection and maintenance.

1.1.3.3 Access to Communications or Alarm System (20 NMAC 4.1.500/40 CFR 264.34)

Sandia/DOE assure that whenever waste is being handled at a Unit, personnel involved have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, this communication equipment allows personnel to contact the Unit Emergency Coordinator and/or the Emergency Operations Center (refer to Appendix E of this General Part B). In addition to the communications and alarm systems described in each Unit-specific module, on-site personnel may carry pagers, two-way radios, and/or cellular telephones so that they can contact or be contacted by on-site and SNL/NM emergency support personnel at all times.

Unit personnel typically work in pairs and maintain contact when handling wastes, further enhancing safety.

1.1.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

SNL/NM Units are designed and operated to prevent hazards, i.e., to minimize the possibility of fire, explosion, or any unplanned or nonsudden releases of hazardous waste or constituents to the environment. Specific Unit design and construction information is presented in Section 1.1 of each Unit-specific Part B module. The following sections describe the general procedures, equipment, and structures that are currently used at SNL/NM Units to prevent hazards. These include preventing hazards during unloading of waste containers, preventing runoff and flooding, preventing contamination of water supplies, mitigating the effects of power outages, preventing undue exposure to personnel, and preventing releases to the atmosphere. Any additional information about procedures is included in Section 1.2 of each Unit-specific module.

1.1.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

Only closed waste containers are accepted for transport by vehicle to SNL/NM Units. Prior to transport, containers are inspected to ensure that they are properly closed, labeled, and in suitable condition for transport.

Loading and unloading operations typically occur outdoors in the area immediately in front of a WMA at a Unit to minimize the distance that the waste must be moved. Spills that might occur during loading or unloading operations will be promptly cleaned up in accordance with spill response procedures contained in Appendix E of this General Part B.

Except where noted in Unit-specific modules, all loading and unloading areas are level, and the asphalt or concrete pavement is in good condition. Loading and unloading areas are also typically free of overhead and other obstructions to visibility and operations.

Appropriate vehicles, forklifts, drum dollies, pallet jacks, and other tools for the safe transport and handling of wastes are used during loading and unloading operations. Small containers may be loaded or unloaded manually from waste-transport vehicles. A forklift or hydraulic lift is typically used to load or unload larger containers. For loads that are moved with a forklift, the containers of waste are typically held together on a pallet with straps or shrink-wrap. Fasteners and clamps are typically used with drum dollies. Waste-handling equipment is maintained and operated in accordance with manufacturers' guidance.

Only qualified personnel trained in RCRA-regulated waste management procedures are allowed to handle RCRA-regulated waste at Units, and they typically work in pairs. Personnel are trained to be aware of weather conditions and other operations that could affect waste movement, and to exercise caution in operating equipment such as forklifts.

1.1.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

Run-on of surface water from surrounding areas and runoff of waste is prevented at Units by Unit design and operating practices. Unit-specific runon/runoff features and operating precautions are described in each Unit-specific Part B module.

1.1.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Due to the depth to groundwater at SNL/NM and Unit operating procedures, it is not anticipated that there will be any impact to groundwater or other water supplies as a result of ongoing operations that involve handling RCRA-regulated wastes at any Unit. Contamination of surface water and groundwater is prevented by Unit operating procedures as well as the spill containment features located within a specific WMA at a Unit. Spills are contained within the buildings or within secondary containment systems, and are cleaned up promptly. Spills occurring outside the buildings will be contained promptly and cleaned up so as not to come into contact with surface water or groundwater. Some units are supplied with potable water that is provided through pressurized underground water supply lines. These water supply lines are designed to withstand industrial activities that are typical of waste management operations, and they are not affected by Unit operations.

1.1.4.4 Mitigating Effects of Equipment Failure and Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

In the event of a power loss, it is usually possible for Unit personnel to place the affected equipment in a safe state, close or cover open containers of RCRA-regulated wastes that are present, and stop operations until power is restored.

The general types of equipment, utilities, and systems that would be affected by a power or equipment failure are listed below, together with features and activities to mitigate effects of a failure.

- Lights: Fixed battery-operated lights operate in the buildings in each Unit where available.
- Alarms: Fire alarm devices in each Unit (except the MSB) are equipped with emergency power supply.
- Pumps and other equipment: Personnel use portable manually- or pneumatically-operated equipment or wait for power to be restored.
- Container-handling equipment: Unit personnel obtain forklifts and drum-handling equipment from Sandia's transportation department.
- Personal Protective Equipment: Unit personnel replace equipment with supplies in the Unit storage areas.
- Vehicles: Unit personnel obtain replacements for vehicles from Sandia's transportation department.
- Telephone: Unit personnel use cellular telephones or portable radios.
- Fire sprinklers: Unit personnel use portable fire extinguishers.

Additional Unit-specific procedures (where applicable) are included in each Unit-specific module.

1.1.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

Only qualified personnel trained in RCRA-regulated waste management procedures are allowed to handle RCRA-regulated waste at Units. The training that these personnel receive includes use of appropriate equipment and personal protective equipment (PPE) for the RCRA-regulated wastes managed at SNL/NM Units.

Personnel at SNL/NM Units are required to use appropriate PPE to protect themselves from the hazards that are or may be found in the work place under normal conditions. Such hazards may include handling heavy containers, operating waste-handling equipment, weather conditions, and contact with RCRA-regulated wastes and constituents.

Operations at SNL/NM Units typically require that personnel handling closed containers of RCRA-regulated wastes wear PPE that includes safety shoes and appropriate gloves (e.g., heavy abrasion-resistant gloves with or without chemical-resistant outer gloves. Depending on the work performed, they may also wear safety glasses or goggles, coveralls, and hard hats.

During treatment operations or other work that involves opening containers, personnel typically don additional PPE (e.g., safety glasses, face shields, chemical-resistant gloves, and coveralls) to protect themselves from hazards that may be present. Such hazards may include the potential for contact with liquids, particles, or corrosive materials.

Increased PPE (e.g., respiratory protection) may also be required during an emergency or unusually hazardous situation.

1.1.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Subpart AA

Sandia/DOE do not use any of the processes identified in 20 NMAC 4.1.500/40 CFR 264, Subpart AA [10-1-03] during storage of RCRA-regulated wastes. Therefore, the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [10-1-03] do not apply to SNL/NM.

Subpart BB

Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations $\geq$ 10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03] during storage. Equipment used in such service will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of

such equipment will be maintained with other Unit records, as described in Section 9.0. Further information is provided in Modules II, III, and V.

Subpart CC

RCRA-regulated wastes stored in containers at SNL/NM may be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/40 CFR 264.1080 [10-1-03]. These standards are not applicable to:

1. Containers that held RCRA-regulated waste prior to December 6, 1996, and to which no RCRA-regulated waste has been added on or after December 6, 1996;

2. Containers having a design capacity of less than or equal to 0.1 cubic meter (m^3) or approximately 26 gallons;

3. Containers used solely for on-site management of RCRA-regulated waste placed in the Unit as a result of implementing remedial activities under corrective action authorities;

4. Containers used solely for the management of radioactive mixed waste; or

5. Containers equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation (20 NMAC 4.1.500/40 CFR 264.1080[b] [10-1-03].

Furthermore, a container is exempt from the 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] container standards in 20 NMAC 4.1.500/40 CFR 264.1086 [10-1-03] if:

- The RCRA-regulated waste in a container has an average volatile organic concentration at the point of waste origin of less than 500 parts per million by weight (ppmw), or

- The organic content of all RCRA-regulated waste entering a container has been reduced by an organic destruction or removal process achieving any one of the conditions specified in 20 NMAC 4.1.500/40 CFR 264.1082(c)(2)(i)-(vi) [10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082 [10-1-03]), or

- The RCRA-regulated waste in the container meets the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40 for organic hazardous constituents present in the waste.

Sandia personnel assume that each container of RCRA-regulated wastes that meets the applicability criteria for Subpart CC (i.e., each container that is not included in any of items 1 through 5 above) is subject to the Subpart CC requirements, unless a waste determination is made in accordance with 20 NMAC 4.1.500/40 CFR 264.1083 to establish that one or more of the exemptions is applicable. The waste determination process is described in Appendix B of this General Part B, and the results are included in the operating record as described in Section 9.0.

At SNL/NM, RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] requirements are managed in primary containers that have a design capacity

greater than 0.1 m^3 but less than 0.46 m^3 while in the container storage Units. Such containers are subject to Container Level 1 standards in 20 NMAC 4.1.500/40 CFR 264.1086(c). Two types of containers are used:

- U.S. Department of Transportation-approved containers that meet the requirements in 20 NMAC 4.1.500/40 CFR 264.1086(f), or

- Containers equipped with covers and closure devices that form a continuous barrier over the container openings as specified in 20 NMAC 4.1.500/40 CFR 264.1086(c)(ii).

Releases to the atmosphere are not anticipated at any of the container storage Units because containers are kept closed during storage. Covers of containers that are subject to the Container Level 1 standards are secured and maintained in closed and sealed conditions (i.e., no cracks, holes, gaps, or other open spaces) while the containers are in storage. Covers are opened only for access for the purposes described in 20 NMAC 4.1.500/40 CFR 264.1086(c) (1)-(5) [10-1-03]: these include adding waste to or removing waste from the container; repackaging the contents; and inspecting or sampling the waste in the container. At each Unit where containers subject to Container Level 1 standards are stored, personnel take the following steps:

- Check containers and the condition and placement of their covers during inspections of stored containers.

- Take remedial actions if needed.

- Record container condition and remedial actions taken in the inspection reports.

These activities are described in Appendix C of this General Part B and in Section 4.0 of the Unit-specific module for each Unit where containers are stored.

Unit personnel maintain records of waste addition to containers as part of the operating record described in Section 9.0. Thus, primary containers that become subject to the Container Level 1 standards are identified at the time they first become subject to the standards, and are subsequently managed in accordance with the standards. If Unit personnel discover that a container should have been managed in accordance with the Container Level 1 standards but was not, Sandia/DOE will file a written report to NMED within 15 days as required in 20 NMAC 4.1.500/40 CFR 264.1090(a).

Sandia/DOE do not store RCRA-regulated wastes in containers that are subject to Container Level 2 or Level 3 standards. Additional Unit-specific information is provided in Section 1.0 of each Unit-specific Part B module for container storage areas (if applicable).

Air emissions control requirements for treatment are addressed in Section 8.0.

1.2 Container Storage

The information provided in this section is submitted to address the applicable container storage requirements of 20 NMAC 4.1.900/40 CFR 270.15 [10-1-03], and 20 NMAC 4.1.500/ 40 CFR 264, Subpart I (10-1-03). The following sections provide brief descriptions of waste management practices applicable to all Units used for container storage of RCRA-regulated wastes at SNL/NM.

Additional Unit-specific information is provided in Section 1.3 of each Unit-specific Part B module.

1.2.1 Container Types and Labeling

Containers that may be used to store RCRA-regulated waste stored at Units qualify as "containers" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. That is, they are "portable devices in which a material is stored, transported, disposed of, or otherwise handled."

A number of container types are used for storage of RCRA-regulated wastes, depending on the type of waste and the ultimate disposition of the waste. Waste containers that may be stored at the SNL/NM Units include, but are not limited to, 30-, 55-, 83-, 85-, and 110-gallon steel, polyethylene, and fiber drums; fiberglass-reinforced plastic or plywood boxes; various steel boxes; metal overpack boxes; cardboard shipping containers; gas cylinders; roll-off bins; labpack containers; various small containers (e.g., 1-, 2-, 5-, 10-, and 20-gallon drums or pails); bags; and some oversized, irregularly-shaped containers.

Containers of RCRA-regulated wastes are clearly labeled with the words "hazardous waste" and a description of container contents (i.e., hazardous waste constituents). The accumulation start date is clearly marked on each container holding RCRA-regulated waste at a SNL/NM Unit.

1.2.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

As required by 20 NMAC 4.1.500/40 CFR 264.173(b) [10-1-03], containers of RCRA-regulated wastes at SNL/NM are handled in a manner that will not cause them to rupture or leak. As required by 20 NMAC 4.1.500/40 CFR 264.173(a) [10-1-03], stored containers at SNL/NM are kept closed during storage except when waste is added to or removed from a container, the contents of a container need to be repackaged, or waste is being inspected or sampled.

Waste-handling equipment is maintained and operated in accordance with manufacturers' guidance.

1.2.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

Prior to transportation or storage, additional containment is provided for each container that is not in good condition (e.g., severe rusting, apparent structural defects). The container may be overpacked or the waste may be repackaged in containers that are in good condition (20 NMAC 4.1.500/40 CFR 264.171 [10-1-03]).

Containers are handled with care, maintained in good condition, and inspected according to the schedule outlined in Appendix C and Section 4.0 of each Unit-specific module. During storage, if a container holding RCRA-regulated waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, Unit personnel begin taking action to remediate the situation upon discovery. Remedial actions include transferring the RCRA-regulated waste from that container to a container that is in good condition or overpacking the container.

1.2.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

Storage configuration of containers depends upon the type of container, its size, and its weight restrictions as well as the load-bearing and/or secondary containment capacity of the specific Unit. Aisle space is maintained to enable the unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency (20 NMAC 4.1.500/40 CFR 264.35 [10-1-03]). Additional information is provided in Unit-specific modules.

1.2.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

As required by 20 NMAC 4.1.500/40 CFR 264.172 [10-1-03], only containers made of or lined with materials that will not react with and are otherwise compatible with the RCRA-regulated waste stored in them are managed at SNL/NM Units. Unit personnel will evaluate the compatibility of the waste to the container by considering one or more of the following as appropriate:

- Physical properties of the waste.
- Chemical properties of the original raw material(s) or commercial chemical product(s) used in the activity that generated the waste (obtained through material safety data sheets or other published information)
- Physical and chemical similarities between the waste and the original material.
- Features of the container(s) used for the original material(s), and compatibility of those features with the physical and chemical properties of the waste.
- Chemical properties of the waste (obtained through knowledge of generating processes, material safety data sheets, and/or published information)
- Data from waste characterization activities as described in Appendix B of the General Part B.
- Information about the containers being considered (supplied by manufacturers of containers).
- US DOT hazardous materials information and packaging specifications (49 CFR 172.101).

Any additional Unit-specific information is included in Section 1.3 of each Unit-specific module.

1.2.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

Containers that do not contain free liquids are not required to be stored in areas equipped with secondary containment. Before storing containers in areas without secondary containment, Unit personnel will verify that the containers do not contain free liquids by reviewing the information provided by the initial waste generator (described in Section B.3.1 of the Waste Analysis Plan [Appendix B]). Any additional Unit-specific information is included in Section 1.3 of each Unit-specific module.

2.0 SITE DESCRIPTION

SNL/NM is located on Kirtland Air Force Base immediately southeast of Albuquerque, New Mexico. General information about the SNL/NM site is included "Site-Wide Description for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix A of this General Part B. Additional Unit-specific information is included in Section 2.0 of each Unit-specific module.

The information in Appendix A includes site description, security procedures, traffic patterns, location information for compliance with seismic and floodplain standards, a topographic map, and groundwater protection information.

3.0 WASTE ANALYSIS PLAN

RCRA-regulated wastes are stored and/or treated at Sandia waste management Units. Information about waste analysis at SNL/NM is included in “Site-Wide Waste Analysis Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units” in Appendix B of this General Part B.

The information in Appendix B includes descriptions of waste streams, waste analysis parameters, characterization procedures, waste acceptance procedures, and special requirements.

4.0 INSPECTION PLAN

Sandia personnel inspect Unit waste management areas and associated systems on a regular basis to assure their integrity, maintenance, and safe operation. The inspection program is described in "Site-Wide Inspection Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix C to this General Part B.

The information in Appendix C includes daily inspection forms, weekly/monthly inspection forms, and requirements for inspection of various types of units. Unit-specific inspection plans are included in Section 4.0 of each module.

5.0 PERSONNEL TRAINING PLAN

Sandia Unit personnel receive training relevant to their positions. The training program is described in "Site-Wide Personnel Training Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix D to this General Part B. Any additional Unit-specific information is included in Section 5.0 of each Unit-specific module.

The information in Appendix D includes training content, frequency, techniques, and requirements for various waste management and Unit personnel.

6.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

Sandia/DOE have developed emergency response and contingency measures in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart D. The plan is described in "Site-Wide Contingency Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix E to this General Part B. Unit-specific information is included in Section 6.0 of each Unit-specific module.

The information in Appendix E includes description of Sandia/DOE emergency response system, general procedures to be followed by Unit personnel in the event of an emergency, and post-emergency actions. Unit-specific information that is included in Section 6.0 of each module includes: description of the Unit, description and location of emergency equipment, and emergency coordinators.

7.0 CLOSURE PLAN

Sandia/DOE have developed closure information and plans in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart G. The closure plan is described in "Site-Wide Closure Plan for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units" in Appendix F to this General Part B. Additional Unit-specific information is included in Section 7.0 of each Unit-specific module.

Closure information provided in Appendix F is applicable to partial closure and/or final closure of the entire SNL/NM facility. Partial closure is defined as closure of one or more Units while leaving other Units in operation. Partial closure will include removal of RCRA-regulated waste from the Unit to be closed, and decontamination or removal of structures and equipment that have been contaminated by waste materials. Such Unit closures will minimize the need for further maintenance, preclude the release of hazardous waste or constituents to environmental media, and be protective of human health.

Final closure will occur when all SNL/NM Units are closed either by waste removal and decontamination or by disposal of contaminated structures and equipment.

8.0 TREATMENT

Sandia/DOE perform and plan to perform limited treatment of RCRA-regulated wastes at some SNL/NM Units (i.e., TTF, existing RMWMF/future CWMF, AHCF). Treatment will be performed to render RCRA-regulated wastes nonhazardous and/or safer to manage on site and/or dispose of off site. Treatment operations requiring a permit are described in Section 8.0 of the Unit-specific module for each Unit where treatment is performed.

8.1 Handling and Treatment of Unstable Wastes

Because of the nature of Sandia/DOE activities, there are a number of chemicals that are used in various laboratories that, with age or improper storage, may become explosive, unstable, or dangerous to handle. Examples of such chemicals include unknown or damaged compressed gas or liquid cylinders; or expired, sensitized chemicals, such as picric acid, crystallized ether, tetrahydrofuran, heavy metal azides, or organic peroxides. Unit personnel may be required to handle and dispose of unstable chemicals.

If the material has deteriorated such that handling the chemical would pose an imminent and substantial threat of a release that could be harmful to human health or the environment, on-site stabilization may be performed to render the material nonhazardous. Treatment may include venting of known, nonhazardous gas cylinders or stabilizing (e.g., rehydrating) the chemical. Unknown gas cylinders are not vented to the atmosphere; however, a sample of the gas may be taken and analyzed to characterize the gas. According to 20 NMAC 4.1.500/ 40 CFR 264.1(g)(8) [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.1(c)(3)(i) [10-1-03], treatment of this type is exempt from permitting requirements and from 20 NMAC 4.1.500/40 CFR 264. Once the material has been stabilized and is safe to handle, it will be disposed of according to normal procedures through the appropriate Unit.

8.2 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

Subpart AA

Sandia/DOE do not use any of the processes identified in 20 NMAC 4.1.500/40 CFR 264, Subpart AA [10-1-03] for the treatment of RCRA-regulated wastes. Therefore, the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [10-1-03] do not apply to SNL/NM.

Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations $\geq$ 10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [10-1-03] except during treatment at the TTF. Sandia/DOE occasionally manage such waste using process equipment identified above at the existing RMWMF/future CWMF and AHCF.

Equipment at the Units is used less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of the equipment will be maintained in the Unit records, as described in Section 9.0.

Subpart CC

RCRA-regulated wastes are treated in containers at the existing RMWMF/future CWMF and AHCF. Such wastes and treatment processes may be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/40 CFR 264.1080 [10-1-03]. These standards are not applicable to:

1. Containers that held RCRA-regulated waste prior to December 6, 1996, and to which no RCRA-regulated waste has been added on or after December 6, 1996;

2. Containers having a design capacity of less than or equal to 0.1 cubic meter (m^3) or approximately 26 gallons;

3. Containers used solely for on-site management of RCRA-regulated waste placed in the Unit as a result of implementing remedial activities under corrective action authorities;

4. Containers used solely for the management of radioactive mixed waste; or

5. Containers equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation (20 NMAC 4.1.500/40 CFR 264.1080[b] [10-1-03].

Furthermore, a container is exempt from the 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] container standards in 20 NMAC 4.1.500/40 CFR 264.1086 [10-1-03] if:

- The RCRA-regulated waste in a container has an average volatile organic concentration at the point of waste origin of less than 500 parts per million by weight (ppmw), or

- The organic content of all RCRA-regulated waste entering a container has been reduced by an organic destruction or removal process achieving any one of the conditions specified in 20 NMAC 4.1.500/40 CFR 264.1082(c)(2)(i)-(vi) [10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082 [10-1-03]), or

- The RCRA-regulated waste in the container meets the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40 for organic hazardous constituents present in the waste.

Sandia personnel assume that each container of RCRA-regulated wastes undergoing treatment that meets the applicability criteria for Subpart CC (i.e., each container that is not included in any of items 1 through 5 above) is subject to the Subpart CC requirements, unless a waste determination is made in accordance with 20 NMAC 4.1.500/40 CFR 264.1083 to establish that one or more of the exemptions is applicable. The waste determination process is described in Section B.5.3 in Appendix B of this General Part B, and the results are included in the operating record as described in Section 9.0.

At SNL/NM, RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] requirements are treated in primary containers that have a design capacity of less than 0.1 m^3. These treatment activities are exempt from Subpart CC standards, as noted above. Sandia/DOE do not perform treatment activities that are subject to Container Level 3 standards.

Management of releases to the atmosphere from containers during storage is addressed in Section 1.1.4.6.

Additional Unit-specific information is provided in Section 8.0 of each Unit-specific Part B module for Units where treatment is performed.

9.0 RECORDKEEPING

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart E, [10-1-03]. The following Unit-specific records are maintained by Sandia/DOE at each Unit unless specified otherwise in each Unit-specific Part B module.

- A current copy of sections of General Part B permit renewal request/application (or permit upon issuance) that govern Unit operations, including the site-wide waste analysis (Appendix B), inspection (Appendix C), training (Appendix D), contingency (Appendix E), closure (Appendix F), and treatment plans (where applicable);

- A current copy of the Unit-specific module sections in the current General Part B that provide additional information, including inspection (Section 4.0), contingency (Section 6.0), and closure (Section 7.0).

- A written or electronic operating record that describes:

  - the type and quantity of each RCRA-regulated waste received

  - the location of RCRA-regulated wastes and the quantity at each location

  - the method(s) and dates of storage and/or treatment of the RCRA-regulated waste

  - records and results of waste analyses and determinations for RCRA-regulated wastes

  - determinations that RCRA-regulated wastes are subject to the Federal Facilities Compliance Order between DOE, Sandia, and NMED (1995, as amended)

  - reports of any incidents that required activation of the Contingency Plan

  - inspection forms for the last three years

  - monitoring, testing, or analytical data and records of corrective actions taken (in the previous or current calendar year) to prevent or mitigate releases of RCRA-regulated waste to the environment

  - treatment notices and certifications (as specified in 20 NMAC 4.1.800/40 CFR 268.7(b), (d), and (e) or 268.9(d) [10-1-03])

  - off-site treatment facility notices and certifications as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(11), and on-site treatment facility information as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(12)

  - off-site storage facility notices and certifications (as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(15), and on-site storage facility information as specified in 20 NMAC 4.1.500/40 CFR 264.73(b)(16).

- Training records for current personnel;
- Written inspection schedule; and
- Air emissions records (as specified in 20 NMAC 4.1.500/40 CFR 264.1064 and 264.1089 [10-1-03]). These include a list of process equipment at the Unit that is identified in 20 NMAC 4.1.500/40 CFR 264 Subpart BB and is used for less than 300 hours per year for management of RCRA-regulated wastes with organic concentrations ≥ 10 percent by weight.

The following records are maintained at the SNL/NM Records Center, currently located in Building 869:

- A copy of the General Part B permit renewal request/application (or permit upon issuance);
- Correspondence and other documents from government agencies;
- Notices to off-site generators (as specified in 20 NMAC 4.1.500/40 CFR 264.12[b] [10-1-03]);
- Waste minimization certification;
- Training records for former employees (maintained for a minimum of three years from the date the employee last worked at a Unit);
- Historical training records for current employees)
- Manifest documents for RCRA-regulated waste shipped off site;
- A copy of the Hazardous Waste Report (Biennial Report);
- Copies of unmanifested waste reports;
- Certification and documentation that the Unit and any associated closed-vent system, control system, and containers meet the specifications of 20 NMAC 4.1.500/40 CFR 264.1084 and 1089 [10-1-03];
- Historical air emission records.
- Historical information from the written or electronic operating record.
- Superseded versions of the General Part B permit renewal request/application, the permit, Contingency Plan, Inspection Plan, Waste Analysis Plan, Treatment Plans, and Training Plan.

9.1 Hazardous Waste Report (Biennial Report; 20 NMAC 4.1.500/40 CFR 264.75 and 20 NMAC 4.1.300/40 CFR 262.41)

Sandia/DOE will prepare and submit a hazardous waste report (biennial report) to the New Mexico Environment Department (NMED) by March 1 of each even-numbered year as required by 20 NMAC 4.1.500/40 CFR 264.75 and 20 NMAC 4.1.300/40 CFR 262.41 [10-1-03]. The biennial report will be submitted to the NMED on U.S. Environmental Protection Agency (EPA) Form 8700-13A/B (June 2000 or update) unless directed otherwise. The report will cover SNL/NM Unit activities during the previous calendar year and will include the information requested on the form and in the accompanying instructions, such as:

- The EPA identification number, name, and address of the facility;
- The calendar year(s) covered by the report;
- A description and the quantity of each RCRA-regulated waste received at each unit during the year;
- The method of treatment, storage, or disposal for each RCRA-regulated waste;
- For generators who treat, store, or dispose of RCRA-regulated waste on site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
- For generators who treat, store, or dispose of RCRA-regulated waste on site, a description in the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and
- The certification signed by Sandia/DOE or an authorized representative.

9.2 Unmanifested Waste Report (20 NMAC 4.1.500/40 CFR 264.76)

Waste from off-site sources may be accepted at SNL/NM, provided that such waste is properly characterized and transported, and meets the requirements listed in Section B.4 of Appendix B. If Sandia/DOE accepts any wastes for treatment or storage from an off-site large quantity generator without an accompanying manifest, or without an accompanying shipping paper as described in 20 NMAC 4.1.500/40 CFR 264.76 [10-1-03], Sandia/DOE will prepare and submit an Unmanifested Waste Report (EPA Form 8700-13B) to the NMED within fifteen days after receiving the waste. The report will include the following:

- The EPA identification number, name, and address of the facility;
- The date the Unit received the waste;
- The EPA identification number, name, and address of the generator and transporter, if available;

- A description and the quantity of each unmanifested RCRA-regulated waste and facility received;
- The method of treatment, storage, or disposal for each RCRA-regulated waste;
- The certification signed by Sandia/DOE or an authorized representative; and
- A brief explanation of why the waste was unmanifested, if known.

9.3 Additional Reports (20 NMAC 4.1.500/40 CFR 264.77)

In accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264.77 [10-1-03], Sandia/DOE will also report the following to the NMED:

- Releases, fires, and explosions as specified in 20 NMAC 4.1.500/40 CFR 264.56(j) [10-1-03];
- Unit closures specified in 20 NMAC 4.1.500/40 CFR 264.115 [10-1-03];
- Manifest discrepancies that cannot be resolved within 15 days after receiving the waste as required by 20 NMAC 4.1.500/40 CFR 264.72(b) [10-1-03];
- Occurrence(s), if any, when RCRA-regulated waste is placed in a container in noncompliance with conditions specified in 20 NMAC 4.1.500/40 CFR 264.1090[a] [10-1-03] (20 NMAC 4.1.500/40 CFR 264.1082[c][1] or [2] [10-1-03]); and
- As otherwise required by 20 NMAC 4.1.500/40 CFR 264, Subparts F, BB, and CC [10-1-03].

10.0 OTHER FEDERAL LAWS

The following federal laws are required under 20 NMAC 4.1.900/40 CFR 270.3 and 270.14(b)(20) [10-1-03], to be given consideration when applying for a hazardous waste facility permit. When any of these laws is applicable, its procedures must be followed. Requirements and applicability of each law are briefly summarized.

1. *The Wild and Scenic Rivers Act (16 United States Code [USC] 1273 et seq.)*. This act provides for a national wild and scenic rivers system and prohibits construction of water resources projects that would have a direct adverse impact on wild and scenic river values. The Rio Grande, the closest river to SNL/NM Units at a distance of approximately 7 miles, is designated as a wild and scenic river. SNL/NM Unit operations do not involve any water resources project construction or development. Therefore, the Wild and Scenic Rivers Act does not apply.

2. *The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.)*. This act establishes a program for the preservation of the nation's cultural resources including historic properties. Cultural resources at KAFB include prehistoric archaeological sites, which in the Albuquerque area date to before AD 1540 (the initiation of Spanish exploration of the area), and historic archaeological sites (sites, buildings, and structures from AD 1540 to 1948). Within the boundaries of KAFB and DOE buffer zones are 284 recorded prehistoric and historic archaeological sites. No traditional cultural properties have been identified at KAFB.

   Cultural resource investigations have recorded approximately 37 eligible and potentially eligible cultural properties in areas used by Sandia/DOE on Kirtland Air Force Base (KAFB) (Table 3). In addition, some Sandia/DOE structures on KAFB land could have Cold War significance or are approaching 50 years of age; these are in the process of being evaluated for potential inclusion in the National Register.

Table 3
Cultural Properties Used by Sandia/DOE on Kirtland Air Force Base

Land Jurisdiction	Cultural Properties		
	Eligible	Potentially Eligible	Total
USAF/USFS withdrawn: Sandia/DOE joint use	8	9	17
USAF: Sandia/DOE/Others joint use	15	5	20
Total	23	14	37

DOE = U.S. Department of Energy
Sandia = Sandia Corporation
USAF = U.S. Air Force
USFS = U.S. Forest Service

The NHPA has been amended by the Archeological and Historic Preservation Act *(16 USC 469a et seq.)*, which directs federal agencies to recover and preserve historic and archeological data that would otherwise be lost as a result of federal construction

or other activities. It has also been amended by the Archeological Resources Protection Act (ARPA) (*16 USC 470aa et seq.*), which requires a permit from the U.S. Department of the Interior (DOI) for excavation or removal of archeological resources from public or pueblo lands. Both of these statutes apply to known or future cultural properties recorded on KAFB land used by Sandia/DOE. Any excavations conducted on, or removal of archaeological resources from, KAFB land used by Sandia/DOE require an ARPA permit obtained through the DOI, National Park Service.

3. *The Endangered Species Act of 1973 (16 USC 1531 et seq.)*. This act provides for the protection of endangered and threatened species of flora and fauna. The act prohibits any action that would jeopardize the continued existence of any endangered or threatened species or its critical habitat. There are no federally-listed threatened or endangered species in the vicinity of SNL/NM Units. Consequently, neither formal consultation nor biological opinion processes have been required for SNL/NM Unit operations by the U.S. Fish and Wildlife Service under Section 7 of the Act.

4. *The Coastal Zone Management Act of 1972 (16 USC 1451 et seq.)*. This act establishes national policy for the management, use, protection, and development of land and water resources of the nation's coastal zones. Section 307(c) of the act and implementing regulations prohibit the EPA from issuing a permit for activity affecting coastal zone land or water without the certification from the applicant that the activity is in compliance with the state Coastal Zone Management Program. As an inland state, New Mexico does not have a State Coastal Zone Management Program with which Sandia/DOE must comply. None of the SNL/NM Units are located in an affected area (i.e., a coastal zone); therefore, the act does not apply.

5. *The Fish and Wildlife Coordination Act of 1934, as amended (16 USC 661-666c)*. This act provides for the protection of fish and wildlife resources potentially affected by development projects that modify any stream or other body of water 10 acres or greater in size. Because there are no natural bodies of surface water proposed for modification by SNL/NM Unit activities, the Fish and Wildlife Coordination Act does not apply.

Consideration will be given to Executive Orders, issued by the President, that are relevant to management of RCRA-regulated wastes at SNL/NM.

11.0 CORRECTIVE ACTION

In accordance with 20 NMAC 4.1.900/40 CFR 270.14(d) [10-1-03], information on solid waste management units is presented in Part 4 of this comprehensive Part B permit request. Solid waste management units are shown on Figure 1 in Part 4.

12.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

Les E. Shephard
Vice President, Energy, Information, and Infrastructure Surety
Sandia Corporation
Albuquerque, New Mexico
Co-Operator

Date Signed

_____ _____

Patty Wagner
Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Albuquerque, New Mexico
Owner and Co-Operator

Date Signed

13.0 REFERENCES

Bretherick's Handbook of Handbook of Reactive Chemical Hazards, 5th Edition, 1995. P.G. Urben, Editor. Butterworth-Heinemann

Hoagland, S.R., 1991, "A Cultural Resources Survey Conducted in the Vicinity of the Sandia National Laboratories Burn Site, KAFB, New Mexico," CGI Project No. 8067 AF.CR, Chambers Group, Inc., Albuquerque, New Mexico.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

New Mexico Environment Department (NMED), US Department of Energy, Sandia Corporation, 1995, Federal Facilities Compliance Order

NFPA, see National Fire Protection Association

NMED, see New Mexico Environment Department

Sandia National Laboratories/New Mexico (SNL/NM), 2004, "Sandia National Laboratories/ New Mexico General Part A Permit Renewal Request/Application, Revision 7.0," Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy, 1999, "Final Site-Wide Environmental Impact Statement for Sandia National Laboratories/New Mexico" (DOE/EIS-0281), Albuquerque Operations Office, Albuquerque New Mexico

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

APPENDIX A

SITE-WIDE DESCRIPTION FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-A-ii
LIST OF FIGURES ..... SW-A-iii
ACRONYMS AND ABBREVIATIONS ..... SW-A-iv
A.1 GENERAL SITE DESCRIPTION SW-A-1
A.2 SECURITY PROCEDURES AND EQUIPMENT SW-A-2
A.2.1 Barriers and Means to Control Entry SW-A-3
A.2.2 Warning Signs SW-A-3
A.3 TRAFFIC PATTERNS, VOLUMES, AND CONTROLS SW-A-3
A.3.1 Traffic Patterns SW-A-4
A.3.2 Traffic Volumes SW-A-4
A.3.3 Traffic Control Signals SW-A-5
A.4 SITE LOCATION INFORMATION SW-A-5
A.4.1 Geologic Setting SW-A-5
A.4.2 Seismic Standard SW-A-5
A.4.3 Floodplain Standard SW-A-6
A.5 TOPOGRAPHIC MAPS SW-A-6
A.5.1 Wells SW-A-7
A.5.2 Wind Rose SW-A-7
A.5.3 Surrounding Land Use SW-A-7
A.5.4 Drainage Control Features SW-A-8
A.5.5 Waste Management Areas SW-A-8
A.6 GROUNDWATER MONITORING SW-A-9
A.7 OTHER PERMIT ACTIVITIES SW-A-9
REFERENCES SW-A-9

LIST OF TABLES

Table No.	Title
A-1	RCRA-Regulated Waste Management Units

LIST OF FIGURES

Figure No.	Title
A-1	Site Location Map, Albuquerque and Kirtland Air Force Base (KAFB)
A-2	Unit Location Map, Sandia National Laboratories/New Mexico
A-3	Sandia National Laboratories/New Mexico Technical Areas (TAs) in Relation to Kirtland Air Force Base
A-4	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes, Sandia National Laboratories/New Mexico
A-5	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes Around Technical Area I
A-6	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes in Technical Areas III and V
A-7	Resource Conservation and Recovery Act-Regulated Waste Transportation Routes at Manzano Base
A-8	Land Uses Adjacent to and Within Kirtland Air Force Base (including Sandia National Laboratories/New Mexico)
A-9	Geologic Features in Relation to Sandia National Laboratories/New Mexico

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
CWMF	Consolidated Waste Management Facility
DOE	U.S. Department of Energy
ft	foot/feet
HWMF	Hazardous Waste Management Facility
KAFB	Kirtland Air Force Base
MSB	Manzano Storage Bunkers
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
TA	Technical Area
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USFS	U.S. Forest Service

SITE-WIDE DESCRIPTION FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

The information provided in this appendix is submitted in accordance with the applicable requirements of New Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.1500– and .900), revised October 1, 2003 [10-1-03]. 20 NMAC 4.1.500 and .900 adopt, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270). The following subject areas are addressed in this appendix or in Section 2.0 of each Unit-specific module.

- A general description of the Sandia National Laboratories/New Mexico (SNL/NM) site (20 NMAC 4.1.900/40 CFR 270.14[b][1] [10-1-03]);
- Site-wide security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]);
- Site-wide traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]);
- Site location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/ 40 CFR 264.18[a] and [b] [10-1-03]);
- Site-wide topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]);
- Site-wide groundwater monitoring and protection information (20 NMAC 4.1.900/40 CFR 270.14[c] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]); and
- Other permit activities.

Together, the information in this appendix, in the General Part B, and in each Unit-specific Part B module meets the applicable regulatory requirements. Individual Units are listed in Table A-1.

For the purposes of this permit renewal request/application, SNL/NM (the facility) is owned by DOE and co-operated by Sandia and DOE.

A.1 GENERAL SITE DESCRIPTION (20 NMAC 4.1.900/40 CFR 270.14[b][1])

SNL/NM is located on Kirtland Air Force Base (KAFB) immediately southeast of the Albuquerque city limits in Bernalillo County, New Mexico. SNL/NM occupies an area of approximately 2,842 acres within the 80-square-mile KAFB (Figure A-1).

Table A-1
RCRA-Regulated Waste Management Units

Unit Name	Acronym	Location, Size	Types of Operations	Operating Status
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. 1.35 acres	Storage, Repackaging	Existing, operational
Thermal Treatment Facility	TTF	Northern part of TA-III. 196 square feet	Treatment	Existing, on standby
Consolidated Waste management Facility/Radioactive and Mixed Waste Management Facility[a]	CWMF/ RMWMF	Southeast corner of TA-III. 3.11 acres	Storage, Treatment, Repackaging	Existing, operational[a]
Auxiliary Hot Cell Facility	AHCF	TA-V. 5578 square feet	Storage, Treatment, Repackaging	Existing, expected to start operations in 2003
Manzano Storage Bunkers (Set of five Units)	MSB	In Manzano Area on KAFB. 0.4 acres occupied by bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	Existing, operational

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes)..

SNL/NM (U.S. Environmental Protection Agency Identification Number NM5890110518) is a multidisciplinary laboratory engaged in research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others. Activities at SNL/NM fall under North American Industry Classification System Numbers 92811 (National Security) and 54171 (Research and Development in the Physical, Engineering, and Life Sciences).

The major Sandia/DOE research and administration functions are located at five Technical Areas (TAs), designated I through V. TAs I, II, and IV are located north of Tijeras Arroyo and Arroyo del Coyote (Figures A-2 and A-3). TAs III and V occupy contiguous tracts of land south of Tijeras Arroyo and west of Arroyo del Coyote.

A.2 SECURITY PROCEDURES AND EQUIPMENT (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

In accordance with 20 NMAC 4.1.500/40 CFR 264.14(a) [10-1-03], an owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of a facility. The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of Units.

A.2.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

20 NMAC 4.1.500/40 CFR 264.14 [10-1-03] and 270.14[b][19][viii] [10-1-03], require that security be provided by 24-hour surveillance which is continuously monitored and controls access to the facility (20 NMAC 4.1.500/40 CFR 264.14[b][1] [10-1-03]), or if that requirement cannot be met, a natural or artificial barrier and means to control entry must be provided (20 NMAC 4.1.500/40 CFR 264.14[b][2] [10-1-03]). The design and operation of the SNL/NM facility fully meet the security requirements of 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

The five TAs, Manzano Base, and Units outside TAs are surrounded by fences that prohibit access except through gated entrances. Only personnel with appropriate Sandia-issued access badges and identification, or escorted visitors, are allowed access to the TAs and all Units. The gates and/or doors to all Units are closed and locked during non-operating hours.

Sandia/DOE security personnel periodically monitor the gates of all SNL/NM technical areas and RCRA-regulated waste management Units during non-operational hours. Any additional Unit-specific information on security procedures and access control is provided in each Unit-specific module.

The SNL/NM Units are located within the fenced boundaries of KAFB. Access to KAFB is controlled 24 hours per day, 7 days per week. Entrance is possible only though five gates, staffed by armed military police, upon recognition of identification stickers or passes issued to each vehicle. Visitors must have a base sponsor and sign an entry log prior to entering the base. The gates are shown in Figure A-4.

A.2.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

20 NMAC 4.1.500/40 CFR 264.14(c) [10-1-03], requires that signs meeting the requirements of that section be posted. Each SNL/NM Unit is posted with “Danger: Unauthorized Personnel Keep Out” (or functionally equivalent) signs in English and Spanish. The signs are legible from a distance of 25 feet and can be seen from any approach to any Unit. The signs and their placement meet the requirements of 20 NMAC 4.1.500/40 CFR 264.14(c) [10-1-03]. Any additional Unit-specific information on warning signs is provided in each Unit-specific module.

A.3 TRAFFIC PATTERNS, VOLUMES, AND CONTROLS (20 NMAC 4.1.900/ 40 CFR 270.14[b][10])

The traffic pattern information presented below is general in nature. More detailed information is provided in Section 2.2 of each Unit-specific module.

RCRA-regulated waste is generated during operations at sites throughout SNL/NM. Because RCRA-regulated waste may be generated throughout SNL/NM, waste transport may occur on nearly all roads within KAFB. Off-site wastes may be received at SNL/NM (see Appendix B of this General Part B). The Units included in this permit application can be reached from the KAFB

entrance gates at Wyoming Boulevard, Truman Avenue, Gibson Boulevard, or Eubank Boulevard (Figure A-4). KAFB may restrict hazardous material traffic to one or more gates.

A system of interior roads, as shown in Figures A-4, A-5, A-6, and A-7, is maintained at SNL/NM. About 78 total miles of roadway exist; 33 of those miles are paved. The paved roads present at SNL/NM are generally built in conformance to the New Mexico State Highway Standards or the "City of Albuquerque Development Process Manual, Standards for Residential Streets" (City of Albuquerque, 1983 and amendments). These standards conform to specifications prepared by the American Association of State Highway Transportation Officials. Paved roads at SNL/NM are generally designed and constructed to accommodate light to moderate volumes of truck traffic, including 30- to 40-ton vehicles. The roads typically consist of a 1.5 - to 4-inch layer of asphaltic pavement over a 4- to-6 inch base course (not always present) and 8- to 12-inch compacted subgrade.

A.3.1 Traffic Patterns

Information addressing current Unit-specific travel routes is presented in Section 2.2 of each Unit-specific module. Traffic patterns are subject to change in response to KAFB security requirements.

A.3.2 Traffic Volumes

During the last official traffic study conducted at KAFB in 1984, the average number of vehicles passing through the continuously guarded KAFB gates during normal workday hours from Monday through Friday was estimated to be (Meyers, 1991):

- Carlisle-Gibson gate—5,200 vehicles
- Truman-Gibson gate—10,200 vehicles
- Louisiana-Gibson gate—18,000 vehicles
- Wyoming gate—21,600 vehicles
- Eubank gate—12,200 vehicles.

The majority of the 67,200 total vehicles consisted of commuting employees in personal automobiles and light-duty trucks. At the time of the traffic study, about 8,400 people were employed at SNL/NM (including Sandia personnel and contractors) and an estimated additional 21,000 people were employed at adjoining KAFB and DOE facilities (Jackson, 1991). Sandia personnel and contractors currently number about 6,450 people and an additional 17,000 are employed at KAFB and DOE facilities (Francis, 2001). The KAFB Security Forces squadron estimates that 40,000 to 50,000 vehicles currently pass through KAFB gates daily (Francis, 2001).

Therefore, Sandia/DOE believes the 1984 traffic data slightly overestimate the traffic volume for 2001.

A.3.3 Traffic Control Signals

Site wide traffic flow on KAFB is controlled by traffic lights, stop signs, yield signs, and one-way streets. Traffic lights are in place at major intersections on KAFB. Traffic signs are used at "T" intersections throughout KAFB, including SNL/NM. Any additional Unit-specific information addressing traffic control is presented in Section 2.2 of each Unit-specific module.

A.4 SITE LOCATION INFORMATION (20 NMAC 4.1.900/40 CFR 270.14[b][11])

A.4.1 Geologic Setting (20 NMAC 4.1.500/40 CFR 264.18[a] and 20 NMAC 4.1.900/40 CFR 270.14[b][11])

SNL/NM is located along the east-central edge of the Albuquerque Basin, one of a north-south-trending series of basins that make up the Rio Grande Rift. The Sandia, Manzanita, and Manzano Mountains, which are uplifted fault blocks, form the eastern boundary of the basin. The Lucero uplift bounds the west side of the basin, the Ladron Mountains bound the south side, and there is limited topographic relief on the northwest side of the basin. The basin is approximately 100 miles long and 20 to 40 miles wide (Figure A-9).

The eastern section of the Albuquerque Basin shows major faulting (Figures A-2 and A-9). The Hubbell Springs, Sandia, and Tijeras faults form a series of down-dropped blocks to the west (SAIC, 1985; Machette, 1982; Grant, 1981; Kelley, 1977).

The Tijeras Fault zone trends northeast from SNL/NM through Tijeras Canyon. The fault zone consists of several subparallel faults with near-vertical dips and show normal and left lateral displacement (Maynard et al., 1991; Lisenbee et al., 1979).

Within the boundaries of KAFB, the Albuquerque Basin rocks are Precambrian to Holocene in age. The upper part of the basin fill within KAFB is comprised of the Ceja Member of the Tertiary Santa Fe Group, which is a complex sequence of gravel, sand, silt, clay, and caliche deposits. Quaternary and Holocene deposits, which include alluvium, landslide deposits, eolian deposits, caliche, and gravel pediments, also comprise Albuquerque Basin sediments within KAFB (Kelley, 1977).

A.4.2 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

SNL/NM is located in Bernalillo County, New Mexico, which is listed in Appendix VI of 20 NMAC 4.1.500/40 CFR 264 [10-1-03]. None of the SNL/NM Units are located within 3,000 feet (ft) of any fault with Holocene displacements (Machette, 1982). Therefore, all SNL/NM Units are compliant with the seismic standards in 20 NMAC 4.1.500/40 CFR 264.18(a) [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(11)(ii) [10-1-03].

A.4.3 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii through v]; 20 NMAC 4.1.500/40 CFR 264.18[b])

SNL/NM is located near the middle of the upper Rio Grande basin that originates in southern Colorado. SNL/NM occupies generally flat, gently west-sloping mesa land located between the Rio Grande Valley to the west and the Manzano and Manzanita Mountains to the east. The nearest surface water body is the Rio Grande, located about 7 miles west of SNL/NM.

The locations of the 100-year floodplains of Tijeras Arroyo and Arroyo del Coyote are shown in Figure A-2. The floodplain portion of Figure A-2 was derived from a U.S. Army Corps of Engineers map (COE, 1979), prepared using Federal Emergency Management Administration guidelines that are equivalent to the mapping techniques used to prepare Federal Insurance Administration floodplain maps. None of the SNL/NM Units are located within a 100-year floodplain, as defined in 20 NMAC 4.1.500/40 CFR 264.18(b)(2)(i) [10-1-03], and as regulated under 20 NMAC 4.1.500/40 CFR 264.18(b)(1) [10-1-03] and 20 NMAC 4.1.900/ 40 CFR 270.14(b)(11)(iv) [10-1-03]. Therefore, all SNL/NM Units are compliant with the floodplain standards.

A.5 TOPOGRAPHIC MAPS (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Figure A-2 is provided to meet the requirements of the 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03]. Figure A-2 is a topographic map of KAFB that shows the SNL/NM TAs and includes the following:

- Map scale and date
- The 100-year floodplain area
- Surface water bodies, including intermittent streams
- Wind roses
- Map orientation (north arrow)
- Legal boundaries of the SNL/NM facility
- Access control features (i.e., fences and gates)
- Groundwater monitoring, withdrawal, and water supply wells both on site and off site at KAFB and SNL/NM in the vicinity of the Units
- Buildings and other structures (e.g., access and internal roads)
- Locations of the HWMF, TTF, existing RMWMF/future CWMF, AHCF, and MSB.
- Areas of residential land use within KAFB.

These items are also shown on topographic maps in the Unit-specific modules. The Unit-specific maps show Unit features and the area surrounding each Unit in greater detail.

A.5.1 Wells (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix])

There are no injection wells at SNL/NM. Groundwater monitoring wells and withdrawal wells located at SNL/NM are shown in Figure A-2. None of the wells shown in Figure A-2 are expected to be influenced by activities at any SNL/NM RCRA-regulated waste management Unit because waste management activities occur in contained areas. KAFB water-supply wells, City of Albuquerque wells, and other wells located within 1,000 ft of the KAFB boundaries are shown on Figure A-2.

A.5.2 Wind Rose (20 NMAC 4.1.900/40 CFR 270.14[b][19][v])

A network of meteorological towers is used to monitor weather conditions at SNL/NM. Data indicate that the overall prevailing winds at SNL/NM are from the east, except that winter winds at the 100-ft elevation are from the north. Rapid night time ground cooling after sunset on cloudless or near-cloudless nights produces strong temperature inversions in which temperature increases with elevation (an atmospheric condition resulting from a reversal of the normal temperature lapse rate). This rapid cooling effect generates nighttime drainage winds out of the mountains, which are strongest at the mouths of the larger canyons. Nighttime winds in these areas are typically from the east and southeast, while daytime winds are typically from the southwest, west, and northwest. It also appears that Tijeras Arroyo diverts surface air flow between TAs III and V on the south and TAs I, II, and IV, and Albuquerque on the north (SNL/NM 2002, 2004). The channeling of wind through Tijeras Canyon can be seen by comparing the wind roses from these two areas (SNL/NM, 2002). Figure A-2 shows wind roses that summarize wind speeds and directions for TA-II (near the HWMF), the southeast corner of TA-III (near the existing RMWMF/future CWMF), and the northeast corner of TA-III (near the AHCF and TTF). Wind roses are also shown on the Unit-specific topographic maps.

A.5.3 Surrounding Land Use (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv])

Albuquerque is the largest population center in Bernalillo County and also the closest population center to KAFB and SNL/NM. According to Census 2000 data, the total population of the Albuquerque metropolitan area is 448,607 (U.S. Census Bureau, 2000). This population includes permanent residents of KAFB living in the KAFB housing areas. An additional 108,071 people live outside the Albuquerque metropolitan area but within Bernalillo County (U.S. Census Bureau, 2000).

SNL/NM is essentially surrounded by KAFB, with co-use agreements on some portions of KAFB. An additional 22,500-acre area to the east of KAFB has been withdrawn from the U.S. Forest Service (USFS) for the exclusive use of KAFB. High explosive tests, explosives storage, and other operations are buffered and barricaded by the mountainous terrain toward the eastern edge of this withdrawal area. Areas to the west and south, by agreements with the State of New Mexico and Isleta Pueblo, serve as buffer zones for other test operations.

Land use in the vicinity of SNL/NM and KAFB is urban to the northwest, north, and northeast. Undeveloped grazing land of Isleta Pueblo is located to the south. Undeveloped public grazing land lies to the west and southwest of KAFB and the buffer zones.

The urbanized area immediately northeast, north, and northwest of SNL/NM is predominantly residential, with commercial development along more heavily-traveled streets. Military (i.e., KAFB) housing is located north of F Street (adjacent to the northern edge of SNL/NM TA-I). Additional military housing is located west of Pennsylvania Avenue, north of Hardin Blvd (west of SNL/NM TA-1), as shown on Figure A-2. Albuquerque International Sunport is located west of the northern part of KAFB. Figure A-8 shows land uses for the areas adjacent to and within KAFB boundaries.

Some areas of KAFB and SNL/NM are within flight paths for aircraft that are taking off and landing at the Albuquerque International Sunport. Sandia/DOE studied the likelihood and potential impact of airplane crashes into SNL/NM facilities (DOE, 1999). The analysis covered several operations and facilities throughout SNL/NM, including the existing RMWMF and facilities near the HWMF and the AHCF. Such accidents were determined to be very unlikely; the annual probability varies from 2.8 in 1,000,000 at the existing RMWMF/future CWMF to 90 in 1,000,000 near the HWMF.

The SNL/NM facility is comprised of five TAs and several additional test areas spread over 17,845 acres, which are under diverse land ownership. SNL/NM occupies 2,842 acres owned by the DOE and an additional 15,003 acres that have been made available through a series of land-use agreements or permits among DOE-Albuquerque Operations, DOE Transportation Safeguards Division, KAFB, USFS, Bureau of Land Management, State of New Mexico, Phillips Laboratory (a private contractor), DOE Central Training Academy, and Isleta Pueblo.

The HWMF is approximately 2 miles south of Interstate 40 and 6 miles east of Interstate 25 and downtown Albuquerque. At their nearest points, the AHCF and the TTF are approximately 3 miles south of Interstate 40 and 6.5 miles east of Interstate 25 and downtown Albuquerque. The MSB are approximately 5 miles south of Interstate 40 and 7.5 miles east of Interstate 25 and downtown Albuquerque. The existing RMWMF/future CWMF is approximately 5.5 miles south of Interstate 40 and 6.5 miles east of Interstate 25 and downtown Albuquerque. Land use in the vicinity of each RCRA-regulated Unit is predominantly or completely industrial. There are no residential areas within 1 mile of any of the SNL/NM Units. The closest residences are in Zia Park, a KAFB residential area located approximately 1 mile west of TA-I and approximately 3.9 miles north-northwest of TA-V.

A.5.4 Drainage Control Features (20 NMAC 4.1.900/40 CFR 270.14(b)(8)(ii)

Drainage control features (e.g., run-on/runoff, drainage barriers, storm water discharge) are shown on figures provided in each Unit-specific module.

A.5.5 Waste Management Areas

Locations of the waste management areas at each SNL/NM Unit are shown on figures provided in each Unit-specific module.

A.6 GROUNDWATER MONITORING (20 NMAC 4.1.900/40 CFR 270.14[c] and 20 NMAC 4.1.500/40 CFR 264.90[a])

The nine SNL/NM Units included in Part 2 of this Sandia/DOE comprehensive Part B permit request are storage and/or treatment Units that are subject to 20 NMAC 4.1.500/40 CFR 264.101 [10-1-03] which requires that operators of treatment, storage, or disposal facilities develop and implement corrective actions as necessary to protect human health and the environment from past, present, or future releases of RCRA-regulated wastes. None of the nine storage and/or treatment Units addressed in Part 2 have released RCRA-regulated wastes in the past.

The nine Units are not subject to the groundwater protection and monitoring requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart F [10-1-03] because they are not regulated units or solid waste management units.

SNL/NM currently has one regulated unit (the Chemical Waste Landfill) that is subject to the groundwater protection and monitoring requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart F [10-1-03]. Chemical Waste Landfill groundwater monitoring is addressed in Part 3 of this Sandia/DOE comprehensive Part B permit request.

A.7 OTHER PERMIT ACTIVITIES

Sandia/DOE hold numerous environmental permits issued by various agencies. Current permits, including RCRA permits, are listed in Appendix A of the General Part A included in Part 1 of this comprehensive Part B renewal request.

REFERENCES

City of Albuquerque, 1983 and amendments, “Development Process Manual,” Albuquerque, New Mexico.

COE, see U.S. Army Corps of Engineers.

DOE, see U.S. Department of Energy

Francis, R. L., 2001, Kirtland Air Force Base, Public Affairs, Albuquerque, New Mexico, Personal Communication to K. L. Peters, IT Corporation, Albuquerque, New Mexico.

Grant, P. R., 1981, “Geothermal Potential on Kirtland Air Force Base Lands, Bernalillo County, New Mexico,” SAND81-7141, Sandia National Laboratories, Albuquerque, New Mexico.

Jackson, M., 1991, Kirtland Air Force Base, Public Affairs, Albuquerque, New Mexico, Personal Communication to B. A. Sladek, IT Corporation, Albuquerque, New Mexico.

Kelley, V. C., 1977, “Geology of the Albuquerque Basin, New Mexico,” Memoir 33, New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico.

Lisenbee, A. L., L. A. Woodward, and J. R. Connolly, 1979, “Tijeras-Canoncito Fault System—A Major Zone of Recurrent Movement in North-Central New Mexico,” New Mexico Geological Society Guidebook 30, pp. 89–99.

Machette, M. N., 1982, “Quaternary and Pliocene Faults in the La Jencia and Southern Part of the Albuquerque-Belen Basins, New Mexico: Evidence of Fault History from Fault-Scarp Morphology and Quaternary Geology,” New Mexico Geological Society Guidebook, 33rd Field Conference, Albuquerque Country II, pp. 161-169.

Maynard, S. R., L. A. Woodward, and D. L. Giles, 1991, “Tectonics, Intrusive Rocks, and Mineralization of the San Pedro-Ortiz Porphyry Belt, North-Central New Mexico,” New Mexico Bureau of Mines and Mineral Resources Bulletin 137, pp. 57–69, Socorro, New Mexico.

Meyers, L., 1991, Kirtland Air Force Base, Construction and Engineering Department, Albuquerque, New Mexico, Personal Communication to B. A. Sladek, IT Corporation, Albuquerque, New Mexico.

SAIC, see Science Applications International Corporation.

Science Applications International Corporation (SAIC), 1985, “Installation Restoration Program Phase II, Confirmation/Quantification Stage I,” Report 2-827-06-351-33, prepared for Sandia National Laboratories, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico

Sandia National Laboratories/New Mexico (SNL/NM), 2002, “Calendar Year 2001 Annual Site Environmental Report”, SAND 2002-2415, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2004, “Calendar Year 2003 Annual Site Environmental Report”, SAND 2004-2813, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

U.S. Army Corps of Engineers (COE), 1979, “Special Flood Hazard Information Tijeras Arroyo and Arroyo del Coyote, KAFB, New Mexico,” U.S. Army Corps of Engineers, Albuquerque, New Mexico.

U.S. Census Bureau, 2000, American FactFinder Census 2000 Summary File, U.S. Census Bureau, Washington, D.C.

U.S. Department of Energy, (DOE), 1999, “Sandia National Laboratories, New Mexico, Final Site-Wide Environmental Impact Statement,” DOE/EIS-0281, U.S. Department of Energy, Albuquerque, New Mexico

APPENDIX B

SITE-WIDE WASTE ANALYSIS PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-B-iii
LIST OF FIGURES ..... SW-B-iv
ACRONYMS AND ABBREVIATIONS ..... SW-B-v
B.1 FACILITY DESCRIPTION SW-B-2
B.1.1 Description of Waste Management Units SW-B-2
B.1.2 SNL/NM Waste-Generating Processes and Activities SW-B-3
B.1.3 Types of Waste Generated at SNL/NM SW-B-6
B.1.3.1 Laboratory Chemical Waste SW-B-6
B.1.3.2 Contaminated Used Oil SW-B-6
B.1.3.3 Process Wastes SW-B-6
B.1.3.4 Explosive (Reactive) Waste SW-B-7
B.1.3.5 Batteries SW-B-7
B.1.3.6 Elemental Lead SW-B-7
B.1.3.7 Unknown Liquids and Solids SW-B-7
B.1.3.8 Contaminated Soil SW-B-8
B.1.3.9 Debris SW-B-8
B.1.3.10 Decontamination, Purge, and Treatment Waters SW-B-8
B.1.3.11 Treated Waste and Treatment Residuals SW-B-8
B.1.3.12 Containment System Liquids SW-B-8
B.1.4 Types of Waste Treated at SNL/NM Units SW-B-9
B.1.4.1 Waste Treated at the TTF SW-B-9
B.1.4.2 Wastes Treated at the Existing RMWMF/Future CWMF and AHCF SW-B-9
B.1.4.2.1 Waste Treated by Chemical Deactivation SW-B-10
B.1.4.2.2 Waste Treated by Thermal Deactivation SW-B-11
B.1.4.2.3 Waste Treated by Amalgamation SW-B-11
B.1.4.2.4 Waste Treated by Stabilization SW-B-12
B.1.4.2.5 Waste Treated by Macroencapsulation SW-B-12
B.1.4.2.6 Waste Treated by Physical Treatment SW-B-12
B.2 CHARACTERIZATION PROCEDURES SW-B-13
B.2.1 Overall Waste Characterization SW-B-13
B.2.1.1 Data Quality Objectives SW-B-14
B.2.1.2 Waste Characterization Process SW-B-15
B.2.2 Characterization of Unknown Wastes SW-B-22
B.2.3 Characterization of Mixed and Blended Wastes SW-B-23
B.2.4 Characterization of Wastes to be Treated at SNL/NM SW-B-23
B.2.4.1 Waste to be Treated at the TTF SW-B-24
B.2.4.2 Waste to be Treated at the Existing RMWMF/Future CWMF and AHCF SW-B-29
B.2.5 Characterization of Treated Wastes SW-B-29
B.2.5.1 Treated Wastes at the TTF SW-B-30
B.2.5.2 Treated Wastes at the Existing RMWMF/Future CWMF and AHCF SW-B-30
B.2.6 Verification and Reevaluation Frequencies SW-B-32
B.2.6.1 Verification of Wastes SW-B-32
B.2.6.2 Reevaluation of Waste Streams SW-B-33

TABLE OF CONTENTS (Concluded)

B.3 USE OF AVAILABLE KNOWLEDGE SW-B-34
B.3.1 Acceptable Knowledge SW-B-35
B.3.2 Process Knowledge SW-B-35
B.4 WASTE SAMPLING AND ANALYSIS SW-B-37
B.4.1 Proposed Analytical Parameters and Methods SW-B-37
B.4.2 Criteria and Rationale for Parameter Selection SW-B-38
B.4.3 Waste Sampling SW-B-38
B.4.4 Waste Analysis SW-B-41
B.4.4.1 Sample Handling, Preservation, and Storage SW-B-44
B.4.4.2 Analytical Laboratory Selection and Analytical Methods SW-B-45
B.5 OFF-SITE WASTE ACCEPTANCE PROCEDURES SW-B-45
B.5.1 Waste Manifest Verification SW-B-46
B.5.2 Waste Shipment Verification SW-B-47
B.5.3 Waste Description Verification SW-B-47
B.6 SPECIAL PROCEDURAL REQUIREMENTS SW-B-47
B.6.1 Procedures for Ignitable, Reactive, and Incompatible Wastes SW-B-47
B.6.2 Procedures to Ensure Compliance with LDR Requirements SW-B-48
B.6.2.1 Storage Prohibitions SW-B-48
B.6.2.2 Characterization for LDR Compliance: Wastes Generated Through Treatment of RCRA-Regulated Wastes at SNL/NM Units SW-B-49
B.6.2.3 Characterization for LDR Compliance: Wastes From Off-Site Sources SW-B-50
B.6.3 Procedures to Ensure Compliance with Air Emission Requirements SW-B-50
B.7 RECORDS SW-B-51
REFERENCES SW-B-51

LIST OF TABLES

Table No.	Title
B-1	Descriptions of Types of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units
B-2	Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico
B-3	Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units
B-4	Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste
B-5	Recommended Sample Containers, Preservation Techniques, and Holding Times

LIST OF FIGURES

Figure No.	Title
B-1	Decision Flow Logic Diagram for Managing Off-Site Generated Waste at Sandia National Laboratories/New Mexico

ABBREVIATIONS AND ACRONYMS

20 NMAC 4.1.*XX*	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *XX*
40 CFR *XXX.XX*	Code of Federal Regulations, Title 40, Part *XXX*, Section *XXX.XX*
AHCF	Auxiliary Hot Cell Facility
ASTM	American Society for Testing and Materials
CWMF	Consolidated Waste Management Facility
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DR	disposal request
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FFCO	Federal Facilities Compliance Order
KAFB	Kirtland Air Force Base
LDR	land disposal restriction
MSDS	Material Safety Data Sheet
PETN	pentaerythritol tetranitrate
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
R&D	research and development
RMWMF	Radioactive and Mixed Waste Management Facility
RTL	regulatory threshold limit
Sandia	Sandia Corporation

LIST OF ABBREVIATIONS/ACRONYMS (Concluded)

SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SVOC	semivolatile organic compound
TC	toxicity characteristic
TCLP	Toxicity Characteristic Leaching Procedure
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
UHC	underlying hazardous constituent
Unit	RCRA-regulated waste management unit
VOC	volatile organic compound
WAP	waste analysis plan

SITE-WIDE WASTE ANALYSIS PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This waste analysis plan (WAP) presents information on the chemical and physical nature of Resource Conservation and Recovery Act (RCRA)-regulated waste stored and/or treated at the Sandia National Laboratories/New Mexico (SNL/NM) RCRA-regulated waste management units (Units) described in Section 1.0 of this Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application, hereinafter referred to as the General Part B, and listed in Section B.1.1 of this WAP. The Units are co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE).

Sandia/DOE perform storage and treatment of the RCRA-regulated wastes listed in the "General Part A Permit Renewal Request/Application," Revision 7.0, (SNL/NM, 2004) at the Units described in Section B.1.1. This WAP applies to those wastes only. It addresses the waste characterization necessary to perform waste storage and treatment activities requiring a permit (i.e., the activities described in the General Part B and Unit-specific modules). Sandia/DOE do not perform disposal of RCRA-regulated wastes under the terms of the existing or requested permit. Therefore, this WAP does not address waste characterization necessary for disposal.

This WAP has been prepared to meet the requirements set forth in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V (20 NMAC 4.1.500), incorporating by reference the Code of Federal Regulations, Title 40, Part 264, including Section 264.13 (40 CFR 264.13), revised October 1, 2003[10-1-03]. It has also been prepared to meet additional waste analysis requirements specified in 20 NMAC 4.1.900/40 CFR 270.14(b) [10-1-03] and 20 NMAC 4.1.800/40 CFR 268.7(b) and 268.9(d) [10-1-03] applicable to wastes treated at SNL/NM Units. Together, the information in this appendix, in the General Part B, and in each Unit-specific module meets the applicable regulatory requirements. The waste analysis information contained in this WAP applies to the SNL/NM Units where RCRA-regulated wastes are stored in containers and/or treated in containers or miscellaneous units.

The content of this WAP follows the guidance provided in "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual" (U.S. Environmental Protection Agency [EPA], 1994), as the guidance applies to activities requiring a permit. The general information provided in this WAP is applicable to all SNL/NM Units; Unit-specific information is also provided herein as necessary to address Unit-specific waste characterization requirements. This WAP is organized as follows:

Section B.1 Facility Description: Includes a general description of SNL/NM; a list of SNL/NM Units and associated waste management activities; general descriptions of the types of RCRA-regulated waste that are stored and/or treated at the Units; and a general description of the activities that generate RCRA-regulated wastes managed at the Units.

Section B.2 Characterization Procedures: Includes the characterization approach (i.e., acceptable knowledge supplemented by sampling and analysis) for RCRA-regulated waste stored and/or treated at SNL/NM Units, a discussion of the data quality objectives (DQOs) and process used to ensure that the characterization data are suitable for their intended purposes, and a discussion of the rationale for specific data.

Section B.3 Use of Available Knowledge: Includes a discussion of the application of acceptable knowledge and available information for waste characterization.

Section B.4 Sampling and Analysis: Includes a discussion of the proposed sampling and analytical parameters and methods used at SNL/NM and the criteria/rationale for the parameter selection.

Section B.5 Off-Site Waste Acceptance Procedures: Includes a discussion of procedures in place for acceptance of RCRA-regulated waste from off-site facilities.

Section B.6 Special Procedural Requirements: Includes a discussion of the procedures in place for ignitable, reactive, and incompatible wastes; procedures to ensure compliance with land disposal restrictions (LDRs) for on-site activities that require a permit; and procedures to ensure compliance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC [10-1-03].

Section B.7: Records: Includes a discussion of records maintained for waste characterization and analytical data.

B.1 FACILITY DESCRIPTION [20 NMAC 4.1.900/40 CFR 270.14(b)(1)]

SNL/NM is a multidisciplinary laboratory engaged in the research and development (R&D) of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others.

SNL/NM is located in Bernalillo County, New Mexico, adjacent to the southeastern boundary of Albuquerque. SNL/NM occupies an area of about 2,842 acres located in the eastern portion of the 52,233-acre Kirtland Air Force Base (KAFB). SNL/NM consists of five technical areas, designated Technical Areas I through V, as well as remote test areas. A detailed description of the SNL/NM facility is included in Appendix A of this permit renewal request/application.

B.1.1 Description of Waste Management Units

SNL/NM active RCRA-regulated waste management Units are described in detail in the General Part B and Unit-specific modules. The Units and associated waste management activities are:

- Hazardous Waste Management Facility: Container storage and repackaging of RCRA-regulated wastes;
- Thermal Treatment Facility (TTF): Thermal treatment of a specific RCRA-regulated waste stream by open burning in a miscellaneous unit;
- Existing Radioactive and Mixed Waste Management Facility (RMWMF): Container storage and repackaging of RCRA-regulated wastes and treatment of RCRA-regulated wastes in containers;

- Future Consolidated Waste Management Facility (CWMF) at the existing RMWMF: The CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes) following physical modifications to RMWMF facilities;

- Auxiliary Hot Cell Facility (AHCF): Container storage and repackaging of RCRA-regulated wastes and treatment of RCRA-regulated wastes in containers; and

- Manzano Storage Bunkers: Container storage of RCRA-regulated wastes.

The General Part A lists the EPA Hazardous Waste Numbers that may* be assigned to the wastes stored in containers at SNL/NM Units1. The General Part A also lists the EPA Hazardous Waste Numbers that may* be assigned to the wastes that will be treated in containers or the miscellaneous unit at SNL/NM.

B.1.2 SNL/NM Waste-Generating Processes and Activities

RCRA-regulated waste is generated at SNL/NM from design, development, and testing of weapon systems and components; material research; pulsed power research; reactor safety research; support activities; RCRA corrective action activities (through the Sandia/DOE Environmental Restoration [ER] project); and decontamination and decommissioning (D&D) activities. Sandia/DOE also accept small volumes of RCRA-regulated waste for storage and/or treatment from off-site facilities. Some of the RCRA-regulated waste generated at SNL/NM also meets the definition of low-level or transuranic waste as these terms are defined in DOE Order 435.1-1 (DOE, 1999).

It is not feasible to provide detailed descriptions of all possible wastes that could be managed at one or more of the SNL/NM Units. Table B-1 summarizes information on RCRA-regulated waste types typically generated at SNL/NM. The following sections contain general descriptions of the typical waste types the associated waste-generating processes and/or activities, and the waste forms associated with each type. For the purposes of this WAP, a waste type is a general category used to describe one or more wastes or waste streams that share key features (e.g., type of waste-generating process, waste form). Also for the purposes of this WAP, a waste stream is defined as waste that is routinely generated as part of a well-defined waste-generating process and is distinguishable from other waste by some unique combination of one or more of the following: specific waste source or generating process; EPA Hazardous Waste Numbers; SNL/NM Unit-specific handling requirements; off-site treatment, storage, and disposal facility (TSDF) handling requirements; LDR status; waste compatibility issues; or waste characterization requirements.

1 In this WAP, the term “may” when marked with an asterisk, denotes a statement where the uncertainty implied by “may” instead of “will” is technically accurate and appropriate.

Table B-1
Descriptions of Types of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Principal Waste-Generating Activity	Basis for Hazardous Waste Designation	Potential[a] EPA Hazardous Waste Numbers	Potential[a] Hazardous Constituents and/or Characteristics in the Waste
Laboratory Chemical Waste	Weapon systems and components design, development, and testing and material research	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 All P- and U-EPA Hazardous Waste Numbers	Ignitability Corrosivity Reactivity Toxicity [c] Discarded commercial chemical products and off-specification species
Contaminated Used Oil	Weapon systems and components design, development, and testing, material research, pulsed-power research, reactor safety research, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents
Process Wastes	Weapon systems and components design, development, and testing, material research, ER Project activities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents
Explosive Waste	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D003 D011 F003	Ignitability Reactivity Silver Acetone
Batteries	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D002 D003 D006 D007 D008 D009 D011	Corrosivity Reactivity Cadmium Chromium Lead Mercury Silver
Elemental Lead	Pulsed-power research, reactor safety research, ER Project and D&D activities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D008	Lead
Unknown Liquids and Solids	Legacy wastes from historical weapons system design, development and testing; materials research; and ER Project and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043	Ignitability Corrosivity Reactivity Toxicity[c]

Table B-1 (Concluded)
Descriptions of Resource Conservation and Recovery Act-Regulated Waste Stored and/or Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Principal Waste-Generating Activity	Basis for Hazardous Waste Designation	Potential[a] EPA Hazardous Waste Numbers	Potential[a] Hazardous Constituents and/or Characteristics in the Waste
Contaminated Soil	ER Project and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005 F039	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents Leachate
Debris	Weapon systems and components design, development, and testing, material research, pulsed-power research, reactor safety research, support activities, ER Project and D&D activities, and off-site generated waste	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed Fingerprint Analysis[d] (off-site waste)	D001 D002 D003 D004-D043 F001-F005 F039	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents Leachate
Decontamination, Purge, and Treatment Waters	ER Project and D&D activities	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D002 D004-D043 F001-F005 F039	Corrosivity Toxicity[c] Spent solvents Leachate
Treated Waste and Treatment Residuals	Support activities (radiation protection and waste management)	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent -solvents
Containment System Liquids	Support activities (waste management)	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D004-D043 F001-F005	Ignitability Corrosivity Reactivity Toxicity[c] Spent solvents

a "Potential" is defined as possibly present

b "Acceptable knowledge" is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994)

c A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, Test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1986 and all approved updates), the sample or the extract from a representative sample of the waste contains any of the constituents listed (D004-D043) at a concentration equal to or greater than the respective value given in 20 NMAC 4.1.200/40 CFR 261 Subpart C (10-1-03)

d "Fingerprint analysis" refers to checks and field methods designed to quickly identify chemical properties (e.g., pH, density, chlorine content, etc)

Individual containers of waste packed into a single lab pack container do not constitute a waste stream. RCRA-regulated waste types may* be of uniform composition (i.e., homogeneous) or of dissimilar/diverse composition (i.e., heterogeneous). Table B-1 includes brief waste type descriptions, the associated waste-generating process or activity, and the characterization basis for RCRA-regulated waste designation. Table B-1 also addresses the variability of each waste type by listing the potential EPA Hazardous Waste Numbers and potential hazardous waste constituents and/or characteristics associated with each waste type. Each type of waste may* include one or more wastes and waste streams.

B.1.3 Types of Waste Generated at SNL/NM

RCRA-regulated wastes are stored in containers at various SNL/NM Units. Typical RCRA-regulated waste types are described below. Section 1.2 in the General Part B provides more specific information on waste types that are considered to be acceptable at each Unit, and describes waste-handling practices, including Unit-specific container requirements. All waste types described in this WAP are acceptable for storage at each Unit except the TTF. Characterization of these wastes is discussed in Section B.2.

B.1.3.1 Laboratory Chemical Waste

Laboratory chemical waste includes commercial chemical products or manufacturing chemical intermediates (in solid, liquid, or contained gas forms) such as reagents, metal powders, oxidizers, reactive metals, elemental mercury, elemental sodium, and other materials that have Material Safety Data Sheets (MSDSs) or other product documentation. It also includes excess commercial chemical products; solid laboratory material (such as laboratory wipes contaminated with solvent or lead solder); or manufacturing chemical intermediates that have exceeded their shelf life, are excess to SNL/NM needs, are off-specification, or are no longer usable for their intended purpose. SNL/NM initial generators generally produce this type of waste during various R&D and testing operations. Some of these laboratory chemical wastes also exhibit the hazardous waste characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

B.1.3.2 Contaminated Used Oil

Used oils, a liquid waste form, from vacuum pumps and other machinery may* be contaminated with listed RCRA-regulated wastes or exhibit the hazardous waste characteristics of ignitability or toxicity. Specific constituents depend on the processes that generated the contaminated used oil.

B.1.3.3 Process Wastes

Process wastes, which can be liquid or solid chemicals, solutions, mixtures, or wastewaters, are generated as a result of various activities, including experiments and routine operational processes. Typical RCRA-regulated process wastes include, but are not limited to, acidic solutions, alkaline solutions, oxidizers, and wastewaters. These wastes may* exhibit hazardous waste characteristics (e.g., corrosivity, reactivity, toxicity) or be RCRA-regulated listed waste from nonspecific sources (e.g., spent solvents).

B.1.3.4 Explosive (Reactive) Waste

An explosive material is defined as a chemical compound or mixture containing any oxidizing and combustible units, or other ingredients in such proportions, quantities, or packing that ignition by fire, friction, concussion, percussion or detonation of any part thereof may* (and is intended to) decompose with the production of a considerable quantity of heat and gas. Therefore, explosive waste and explosive-contaminated waste exhibit the hazardous waste characteristic of reactivity described in 20 NMAC 4.1.200/40 CFR 261.23 [10-1-03], if they are capable of detonation or explosive reaction when subjected to a strong initiating source or if heated under confinement. Examples of explosive (reactive) waste include components and test units that contain an explosive or explosive fragments, powders, and residues. Some of these wastes also exhibit hazardous waste characteristics of ignitability and/or toxicity.

Explosive waste and explosive-contaminated waste are generated at SNL/NM primarily from R&D activities. Explosive waste generally consists of discrete pieces of solid explosive material, whereas explosive-contaminated waste typically consists of solid or liquid wastes that have been contaminated with explosive material. A specific type of explosive waste is managed at the TTF and is described in greater detail in Section B.1.4.1.

B.1.3.5 Batteries

Batteries, a solid waste form, are used in numerous SNL/NM activities, and may* exhibit the hazardous waste characteristics of reactivity, corrosivity, or toxicity (due to the presence of metals such as cadmium, mercury, and lead). . Information about the battery content, hazards, and EPA Hazardous Waste Numbers is determined using manufacturer's data. For example, unfired thermal batteries contain metals and exhibit the hazardous waste characteristics of reactivity and toxicity; lithium batteries exhibit the characteristic of reactivity; and mercury batteries, silver batteries, and nickel-cadmium batteries exhibit the characteristic of toxicity.

B.1.3.6 Elemental Lead

Solid elemental lead items that cannot be reused (e.g., for radiation shielding or containment) or are in a form that is unsuitable for recycling directly may* be declared waste. These wastes exhibit the hazardous waste characteristic of toxicity. Alternatively, these items may* be managed as scrap metal.

B.1.3.7 Unknown Liquids and Solids

Unknown liquids and solids consist largely of legacy wastes from historical weapons systems design, development and testing; material research; and ER Project and D&D activities. Typical RCRA-regulated unknown wastes include, but are not limited to, unlabeled laboratory chemicals, residues in equipment and containers, and solid items that are smaller than debris (as defined in 20 NMAC 4.1.800/40 CFR 268.2). Characterization depends on documented historical activities and results of any site investigation (for ER sites). These wastes may* exhibit hazardous waste characteristics (e.g., ignitability, corrosivity, reactivity, and/or toxicity).

B.1.3.8 Contaminated Soil

This waste type includes soil, a solid waste form, from ER Project activities, or other cleanup and excavation operations. Characterization of contaminated soil depends upon the documented historical activities that occurred at the site and the results of site investigation and sampling and analysis activities.

B.1.3.9 Debris

This waste type includes material generated during cleaning operations, D&D operations, emergency response, waste management, and protection of personnel. These wastes are solid, usually heterogeneous, compactable and non-compactable materials that meet the definition of hazardous debris in 20 NMAC 4.1.800/40 CFR 268.2). Compactable materials include but are not limited to items such as personal protective equipment, rags, wipes, swipes, paper, and filters. Non-compactable materials include but are not limited to equipment, components, electronic hardware, experimental remnants, cables, tools, machining parts or debris, building materials, and glassware. Debris may* be contaminated with or contain RCRA-regulated listed waste(s) and/or exhibit one or more hazardous waste characteristics (i.e., reactivity, corrosivity, ignitability, and/or toxicity).

B.1.3.10 Decontamination, Purge, and Treatment Waters

This waste type includes decontamination, purge, and treatment water (i.e., wastewater) from ER Project and D&D activities. The hazardous waste characteristics depend upon the documented historical activities that occurred at the site, the results of site investigation(s), and sampling and analysis (if needed). Decontamination, purge, or treatment waters may* be contaminated with or contain RCRA-regulated listed waste(s) and/or exhibit a hazardous waste characteristic (i.e., corrosivity and/or toxicity).

B.1.3.11 Treated Waste and Treatment Residuals

Secondary waste types (i.e., solids, liquids, or contained gases) generated by treatment operations at SNL/NM Units will be stored on site pending determination of success in meeting treatment goals, subsequent treatment, and/or transportation to appropriate off-site TSDFs, as described in Section B.1.4.

B.1.3.12 Containment System Liquids

This waste type includes liquids that accumulate in containment system structures (e.g., spill pallets, trenches). Containment system liquids may* be contaminated with or contain RCRA-regulated listed waste(s) or exhibit a hazardous waste characteristic (i.e., reactivity, corrosivity, ignitability, and/or toxicity), depending on the source of the accumulated liquid.

B.1.4 Types of Waste Treated at SNL/NM Units

RCRA-regulated waste is treated at the TTF, which is a miscellaneous unit. RCRA-regulated wastes are treated in containers at the existing RMWMF/future CWMF and AHCF. Typical RCRA-regulated wastes and waste streams that are treated at SNL/NM Units are described in the following sections. Sandia/DOE personnel use the waste characterization procedures described in this WAP (Section B.2) to determine whether treated wastes and treatment residues are RCRA-regulated wastes, to determine whether they meet the treatment standards in 20 NMAC 4.1 800/40 CFR 268, and to assign appropriate EPA Hazardous Waste Numbers.

B.1.4.1 Waste Treated at the TTF

Explosive (D003) waste treated at the TTF is a silver acetylide/silver nitrate (SASN) mixture that is generated as a result of a specific process that is well defined and well controlled, enabling Sandia/DOE to characterize the waste stream on the basis of knowledge of the process and the raw materials used. SASN is present in the solid and liquid wastes treated at the TTF. The waste also meets the definition of ignitable waste (D001), and often bears EPA Hazardous Waste Numbers D011 and F003, depending on the silver concentration and the presence of spent solvents. The treatment is performed to eliminate the hazardous waste characteristics of reactivity and ignitability. The waste is composed of:

- A liquid or slurry containing varying amounts of acetone, acetonitrile, nitric acid, water, and typically some SASN crystals. The liquid or slurry may* also contain pentaerythritol tetranitrate (PETN), another explosive.

- Solid items that may* contain small quantities of SASN, including paper wipes, cotton rags and swabs, filter elements, incidental silver nitrate that did not react to form SASN, and traces of Viton™ fluoroelastomer. Small quantities of PETN may* also be present on the solids.

Specific information about the treatment process is included in Section 8.0 of Module II.

B.1.4.2 Wastes Treated at the Existing RMWMF/Future CWMF and AHCF

RCRA-regulated wastes that are treated at the existing RMWMF/future CWMF and AHCF may* be generated from specific R&D processes and activities. Other wastes may* be manufactured items or radioactive mixed wastes that are not amenable to sampling and analysis. Consequently, Sandia/DOE characterize RCRA-regulated wastes and waste streams treated at the existing RMWMF/future CWMF and AHCF using process knowledge, supplemented by sampling and analysis as needed. The process knowledge often includes knowledge of the item or a full accounting of the raw materials used in generating the waste. To ensure that detailed and accurate waste characterization exists, the process outlined in Section B.2 is used.

Wastes that are treated at the existing RMWMF/future CWMF and AHCF include any of the following:

- Solid items exhibiting the hazardous waste characteristics of ignitability and/or reactivity;
- Solid items (including debris) exhibiting the hazardous waste characteristic of toxicity (excluding the high mercury subcategory) or containing spent solvents or commercial chemical products;
- Liquid wastes and wastewaters exhibiting the hazardous waste characteristics of ignitability, corrosivity, or reactivity; and
- Liquid wastes and wastewaters containing toxicity characteristic (TC) metals .

Treatment processes and the associated treatment goals at the existing RMWMF/future CWMF and AHCF are discussed in Section 8.0 of Modules III and V, respectively. They include:

- Chemical deactivation to eliminate the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity.
- Thermal deactivation to eliminate the hazardous waste characteristic of reactivity in reactive wastes, including explosives other than primary explosives.
- Amalgamation to immobilize elemental mercury into a solid, leach-resistant form.
- Stabilization to immobilize hazardous waste toxicity characteristic metals and/or eliminate free liquids.
- Macroencapsulation to immobilize hazardous constituents.
- Physical treatment to change the physical character of the waste to make it more amenable to subsequent treatment and/or storage, or to reduce waste volume.

The RCRA-regulated wastes to be treated at the existing RMWMF/future CWMF and the AHCF typically are assigned one or more of the following EPA Hazardous Waste Numbers: D001-D011, D018-D043, and F001-F005. As noted in the Part A, other RCRA-regulated wastes may* also be treated if the treatment methods are appropriate. The EPA Hazardous Waste Numbers for RCRA-regulated waste to be treated at the existing RMWMF/future CWMF and AHCF are determined through the characterization process described in Section B.2, in which available knowledge is supplemented by sampling and analysis..

B.1.4.2.1 Waste Treated by Chemical Deactivation

RCRA-regulated wastes are treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF to remove the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity. RCRA-regulated wastes that are chemically deactivated at the existing RMWMF/future CWMF and AHCF generally consist of solids or liquids generated during R&D activities, and are described below.

Laboratory chemical waste consists of commercial chemical products; manufacturing chemical intermediates; solid laboratory materials (such as laboratory wipes); or excess, off-specification, or no longer usable chemical products that may* contain water-reactive metals (such as elemental sodium or lithium); pyrophoric metal powders and particulates; or acidic or alkaline liquids.

Process waste consists of liquid or solid chemicals, solutions, or mixtures that are acidic, alkaline, or oxidizers.

Explosive (reactive) waste consists of explosive residues and powders.

B.1.4.2.2 Waste Treated by Thermal Deactivation

RCRA-regulated wastes are treated by thermal deactivation at the existing RMWMF/future CWMF to remove the hazardous waste characteristic of reactivity. These wastes generally consist of solid items and are generated primarily from R&D activities and ER Project activities, and are described below.

Batteries consist of unfired waste thermal batteries that contain reactive material.

Explosive waste consists of static-sensitive explosives and explosive components, and solid items (e.g., paper towels, rags, and wipes) contaminated with static-sensitive explosives. The quantity of explosive (reactive) waste thermally treated at the existing RMWMF/future CWMF at any one time will be equivalent to 25 grams of trinitrotoluene or less. Furthermore, the explosive waste thermally treated at the existing RMWMF/ future CWMF will not be:

- Primary explosives,
- Potentially fragment-producing when treated,
- Explosives that are confined,
- Explosives packaged as a unit with items that could become projectiles (e.g., wood, metal, or plastic) when treated, or
- Unknown or uncharacterized explosives.

B.1.4.2.3 Waste Treated by Amalgamation

RCRA-regulated wastes are treated by amalgamation at the existing RMWMF/future CWMF to immobilize elemental mercury into a solid, leach-resistant form that has minimal potential for emission of mercury vapor. The RCRA-regulated waste that is treated by amalgamation is liquid elemental mercury.

B.1.4.2.4 Waste Treated by Stabilization

RCRA-regulated wastes are treated by stabilization at the existing RMWMF/future CWMF and AHCF to immobilize hazardous waste toxicity characteristic metals and/or eliminate free liquids. RCRA-regulated wastes that are stabilized at the existing RMWMF/future CWMF and AHCF generally consist of liquids, soils, and particulate-type wastes.

Laboratory chemical waste consists of commercial chemical products, manufacturing chemical intermediates, small pieces of solid laboratory materials such as laboratory wipes, or excess, off-specification, or no longer usable chemical products in particulate or liquid forms that contain or are contaminated with hazardous waste constituents. This waste is generated primarily by R&D activities.

Process waste consists of liquid or solid chemicals, solutions, or mixtures that contain or are contaminated with hazardous waste constituents. This waste is generated primarily from R&D activities. The liquids are typically aqueous or oils.

Contaminated soil consists of soils that are contaminated with hazardous waste constituents. This waste is generated primarily from ER Project and other cleanup and excavation operations.

B.1.4.2.5 Waste Treated by Macroencapsulation

RCRA-regulated solid waste items, including debris, are treated by macroencapsulation at the existing RMWMF/future CWMF and AHCF to immobilize hazardous waste constituents.

Debris consists of solid, heterogeneous, compactable and non-compactable solids that contain or are contaminated with hazardous waste constituents. This waste is generated primarily by R&D, D&D, and ER Project activities.

B.1.4.2.6 Waste Treated by Physical Treatment

RCRA-regulated wastes are treated physically at the existing RMWMF/future CWMF and AHCF to reduce waste volume and change the physical character of the waste to make it more amenable to subsequent treatment and/or storage. RCRA-regulated wastes that are physically treated at the existing RMWMF/future CWMF and AHCF generally consist of solid items that exhibit the hazardous waste characteristics of ignitability, reactivity, and/or toxicity, and are described below.

Process waste consists of solid items such as laboratory equipment that can be dismantled and other laboratory items that were used in experiments or other processes. This waste is generated primarily from R&D activities.

Unknown solids consist of legacy wastes that originated from historical laboratory activities and can be dismantled. Waste items with hazardous waste constituents vary in size. The wastes typically exhibit the characteristics of ignitability, reactivity, and/or toxicity.

Debris consists of solid, heterogeneous, compactable and non-compactable materials that contain or are contaminated with hazardous waste constituents. This waste is generated primarily by R&D, D&D, and ER Project activities.

Commercial products consist of aerosol cans or other pressurized containers of commercial products that often exhibit the hazardous waste characteristics of ignitability and/or toxicity. They may* also be discarded commercial chemical products. This waste is generated by R&D and other activities.

B.2 CHARACTERIZATION PROCEDURES [20 NMAC 4.1.500/40 CFR 264.13(a)(1) and 264.13(b)(2); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

The approach to waste characterization is based on use of existing information regarding the chemical and physical nature of the waste or waste stream and the activities that generated it, supplemented by data from sampling and analysis as needed. This approach is consistent with "Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste (EPA and U.S. Nuclear Regulatory Commission [NRC], 1997), and with EPA's waste analysis guidance (EPA, 1994).

In this WAP and in the rest of the General Part B, the personnel associated with a RCRA-regulated waste at a given point during management at SNL/NM are sometimes referred to as the "generator" (e.g., the "generator" completes a disposal request). The term "generator," as it appears in this context, is used only to denote an individual person and does not imply the regulatory meaning of "generator" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], particularly with respect to hazardous waste determination as required in 20 NMAC 4.1.300/40 CFR 262.11 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], Sandia is a "generator" and a "person" responsible for determining whether a waste is subject to regulation in accordance with 20 NMAC 4.1.300/40 CFR 262.11 [10-1-03]. SNL/NM is a large research facility, and many individuals (including those employed through contract to Sandia) are involved with generation and subsequent management of RCRA-regulated wastes. These include personnel performing research and other waste-generating activities, and personnel performing environment, safety, and health activities (including waste management) to support Sandia operations and comply with regulatory requirements. Hazardous waste determination at SNL/NM is a collaborative effort between the individuals involved with the generation of RCRA-regulated waste and the Unit personnel. This approach is consistent with the process described in EPA's clarifying memo (Cotsworth, 2002).

This section describes the characterization strategy and procedures that apply to RCRA-regulated waste managed at SNL/NM Units. Use of available information is discussed in Section B.3, and sampling and analysis are discussed in Section B.4.

B.2.1 Overall Waste Characterization

Sandia/DOE have established a DQO process to ensure that the information used to characterize wastes for on-site management is adequate for that purpose. Sandia/DOE are able to make required waste determinations and manage RCRA-regulated waste in compliance with applicable regulatory requirements at SNL/NM Units. The process is described below and includes the following key elements:

- Sandia/DOE establish DQOs for waste characterization information (Section B.2.1.1).
- Initial waste generators supply waste characterization information regarding the physical and chemical properties of the waste and the activity generating the waste.
- The information provided by the initial generator, together with available information about waste types and the characterization guidelines in this WAP, is used by Unit personnel to determine what, if any, additional characterization is required.
- The initial generator and Unit personnel collaborate as needed to gather additional information if required for making waste determinations.
- Unit personnel assume responsibility for proper waste management (including additional waste characterization if necessary) when the waste is accepted at one of the SNL/NM Units.

B.2.1.1 Data Quality Objectives

The application of a DQO process ensures that the type, quantity, and quality of acceptable knowledge or sampling and analysis documentation and data are suitable for accurate waste characterization. DQOs are qualitative and quantitative statements derived from a series of seven planning steps based on the scientific method. DQOs applicable to waste characterization activities at SNL/NM are summarized below.

Define the Problem. A solid waste is generated at SNL/NM and will be accepted at an SNL/NM Unit for storage. RCRA regulations require that hazardous wastes be identified and such wastes be adequately characterized for management at the Unit in accordance with 20 NMAC 4.1.500/40 CFR 264.13 [10-1-03].

Identify the Questions to be Answered . Is the solid waste a RCRA-regulated hazardous waste? What are the appropriate EPA Hazardous Waste Numbers (waste codes)? Does the waste meet any of the exclusions in 20 NMAC 4.1.200/40 CFR 261.4 at the point of generation? Does the waste meet the definition of a listed hazardous waste in 20 NMAC 4.1.200/40 CFR 261 Subpart D at the point of generation? Does the waste exhibit any hazardous waste characteristics as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart C at the point of generation? Does the RCRA-regulated hazardous waste have any properties that require special management?

Specify the Objectives. The characterization process is designed to provide information needed for DOE/Sandia to:

- Determine whether a solid waste is a RCRA-regulated hazardous waste,
- Assign appropriate waste codes, and
- Determine management requirements.

B.2.1.2 Waste Characterization Process

The initial generator assembles information about the waste and submits it to Unit personnel using a disposal request (DR) or equivalent form that is completed by the initial waste generator. This initial information is supplemented as needed until Unit personnel have sufficient information to accurately characterize the waste. When completed, the DR form includes information necessary for waste determinations; identifying physical form; accurately assigning EPA Hazardous Waste Numbers; and safely handling, storing, and transporting the waste by Unit personnel.

Initial generator-supplied waste description information used to characterize waste includes any of the following as needed and available: the quantity; physical form of the waste (e.g., solid, liquid, gas, wastewater); origin and source (e.g., R&D, ER Project, unused commercial product, activity that generated the waste); and waste characteristics and components (e.g., ignitability, corrosivity, chemicals or hazardous waste constituents [including reactive or explosive constituents] that are contained in the waste, the concentrations and proportions of chemicals and constituents, and materials in contact with the waste such as paper or plastic).

Initial-generator-supplied information also includes information regarding the presence of free liquids in containers of RCRA-regulated waste if needed for characterization and/or on-site waste management. Such information is typically obtained through initial-generator waste-characterization knowledge, visual examinations, and/or the Paint Filter Liquids Test, as appropriate.

Unit personnel review the initial-generator-supplied DR forms and associated documentation provided with the forms (e.g., waste process documentation, technical information about the waste, and analytical results) for adequacy, completeness, data reliability, and acceptability. Unit personnel consider each waste individually. Each waste is one of the types described in Section B.1.3 or B.1.4, and Unit personnel use waste type identification to determine whether and what kind of additional information is needed to adequately characterize the waste. Types of additional information are discussed in Section B.3. If analytical data are needed to supplement the available information, they are obtained through sampling and analysis, as described in Section B.4. The information that could be required to characterize wastes for each of the waste types as generated at SNL/NM is summarized in Table B-2.

If Unit personnel determine that documentation provided by the initial generator is incomplete or inadequate for waste characterization, or determine or suspect changes in the waste-generating process, they work with the initial generator to obtain the necessary information. Waste information is typically entered into a waste tracking database during the characterization process.

After considering the accumulated information about the waste, its characteristics, the generating activity, and parameters of interest, and their respective regulatory levels, Unit personnel evaluate the waste with respect to the following general questions and determinations:

- If it meets a listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D[10-1-03], then it is a RCRA-regulated waste.

- If it meets a listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D and exhibits one or more of the characteristics in 20 NMAC 4.1.200/40 CFR 261 Subpart C (as indicated by knowledge, analytical data, or definitions), then it is a RCRA-regulated waste.

Table B-2
Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Laboratory Chemical Waste	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids) • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, reactivity, and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Contaminated Used Oil	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability characteristic • Determine waste compatibility information • Determine toxicity characteristic
Process Wastes	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids) • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Explosive Waste	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Batteries	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • pH (for liquids) • Stability, DOT hazard class[d] • Hazardous waste metals[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Elemental Lead	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Hazardous waste metals[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine toxicity characteristic

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Unknown Liquids and Solids	• Physical Examination • Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids) • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, reactivity, and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Contaminated Soil	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Debris	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Visual or Paint Filter Liquids Test • DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic

Table B-2 (Continued)
Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Decontamination Purge, and Treatment Waters	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • pH • Stability, DOT hazard class[d] • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine ignitability, reactivity, and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic
Treated Waste and Treatment Residuals	• Acceptable Knowledge[a] • Sampling and analysis	SEE TABLE B-3	SEE TABLE B-3
Containment System Liquids	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *Source of waste* • *Available information about waste composition* • *Physical characteristics* • Flash point • pH • Hazardous waste metals[e] • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine ignitability and corrosivity characteristics • Determine waste compatibility information • Determine toxicity characteristic

[a] Acceptable knowledge is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Acceptable knowledge also includes published information regarding chemical properties.

[b] Parameter selection is based on acceptable knowledge for each waste type. The first three items (shown in italics) are mandatory and constitute the minimum acceptable knowledge. The remaining parameters are optional and will be selected for each waste type as necessary, if the results of the first three parameters indicate additional information is needed. .

Table B-2 (Concluded)
Parameters, Characterization Methods, and Rationale for Types of Wastes Generated at Sandia National Laboratories/New Mexico

[c] The hazardous waste characteristic of reactivity as defined in 20 NMAC 4.1.200/40 CFR 261.23 is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[d] The hazardous waste characteristic of ignitability as defined in 20 NMAC 4.1.200/40 CFR 261.21 for solids is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[e] Use of the terms "hazardous waste metals," hazardous waste VOCs," and "hazardous waste SVOCs" refer to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261.24 (10-1-03) and to RCRA-regulated waste as defined in the General Part B.

[f] "Listing criteria" refers to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart D and the exclusion in 20 NMAC 4.1.200/40 CFR 261.3(g).

CFR Code of Federal Regulations
DOT U.S. Department of Transportation
NMAC New Mexico Administrative Code
SVOC semivolatile organic compound
VOC volatile organic compound

- If it does not meet any listing description in 20 NMAC 4.1.200/40 CFR 261 Subpart D but exhibits one or more of the characteristics in 20 NMAC 4.1.200/40 CFR 261 Subpart C (as indicated by knowledge, analytical data, or definitions), then it is a RCRA-regulated waste.

- If it is the same as a previously-generated waste that was a hazardous waste and there have been no substantive changes in the process, then it is a RCRA-regulated waste.

- If it is the same as a previously-generated waste that was not a hazardous waste and there have been no substantive changes in the process, then it is not a RCRA-regulated waste.

- If it similar to other previously- or concurrently-generated wastes that are hazardous wastes, and complete information is not yet available, then Unit personnel may* make a conservative determination that it is a RCRA-regulated waste. For example, if available information indicates toxicity characteristic metals are present but the concentrations are unknown, Unit personnel may* declare the waste exhibits the hazardous waste toxicity characteristic without analytical results.

Once the applicable EPA Hazardous Waste Numbers and physical form have been determined by Unit personnel, the waste is approved for transport to the SNL/NM Unit. Before transporting the waste to the appropriate SNL/NM Unit, Unit personnel visually check to verify that the waste matches the information on the DR form. If Unit personnel detect discrepancies between the shipping documentation and the waste at pickup, Unit personnel can choose to amend the documentation or have the initial generator correct and resubmit the documentation to Unit personnel for approval. If the waste matches the information on the DR form, the waste is transported to the appropriate Unit. Upon receipt of the waste at a Unit, the characterization documentation becomes part of the Unit operating record. Data from additional characterization activities at the Unit (if such activities are performed) also become part of the Unit operating record. These records will be made available at reasonable times to the NMED, upon request.

Unit personnel serve as initial generators in some cases (e.g., legacy items needing further characterization and/or repackaging, and wastes generated through Unit operations). In these cases, Unit personnel assemble the available information, prepare a disposal request, and follow the process described above, except that the waste is already present at the Unit.

B.2.2 Characterization of Unknown Wastes

Occasionally, wastes of an unknown nature require storage or treatment. For example, unknown wastes may* be generated as a result of a container label becoming detached or illegible. Most unknowns are contained in small containers (less than 1 gallon or 1 pound) and are related to R&D projects. These wastes are handled on a case-by-case basis. The individual waste will be tentatively characterized by knowledge of the operations and activities that were performed in the specific area in which the waste was generated. An on-site visual investigation of an unknown waste is another method utilized to characterize the waste. The visual investigation includes the assessment of the unknown for various properties, such as:

- Physical state,
- Color,
- Age,

- Storage and container conditions,
- Changes in substance,
- Phase separations,
- Quantity of waste,
- Any labeling, and
- Type of operations in the nearby area.

The material and its proper handling are sometimes positively identified through this investigation. If a positive identification is made, a disposal request is prepared and the waste is characterized as described above. If the unknown cannot be identified after this investigation, a HazCat™ or comparable test is performed to determine the hazard class. Once the hazard class is determined and the material is safe to transport to the appropriate SNL/NM Unit, the information is recorded on the disposal request, which is processed according to the procedures described above. Additional RCRA waste characterization will typically occur after the waste has been accepted at a SNL/NM Unit.

B.2.3 Characterization of Mixed and Blended Wastes

Initial generators and Unit personnel mix and blend wastes on a limited basis. RCRA-regulated liquid wastes and non-RCRA-regulated wastes may* be mixed/blended together in a single container. These mixing/blending activities are generally limited to process wastes, such as photographic fixers (RCRA-regulated) and photographic developers (non-RCRA-regulated). The resulting mixture is characteristic for silver (D011) and may* be corrosive (D002). Unit personnel may* also combine compatible liquids drained from aerosol cans (commercial chemical products or characteristic liquids) into a single container. The resulting mixture is typically ignitable.

Initial generators provide the following additional information for containers with mixed/blended wastes:

- Approximate amounts of each waste in the mixture
- List of known or potential hazardous constituents in each waste in the mixture
- Whether the wastes in the mixture include listed hazardous wastes such as spent solvents (based on available information)

Unit personnel consider the additional information when they characterize the waste using the general process described in Section B.2.1.2, and assign the applicable EPA Hazardous Waste Numbers. Unit personnel consider the known or suspected concentrations of hazardous waste constituents and the characteristics of the wastes as they were added to the container, before they were mixed and blended with other wastes. The EPA Hazardous Waste Numbers for each of the component wastes are incorporated into the numbers for the mixture.

B.2.4 Characterization of Wastes to be Treated at SNL/NM

Wastes to be treated at SNL/NM are characterized according to the process described above. In addition to the objectives listed in Section B.2.1.1, wastes to be treated are characterized to

determine one or more of the following, as needed, for each waste:

- Applicable treatment standards, including standards for both characteristic and listed hazardous wastes,
- Appropriate treatment methods to meet the standards,
- Presence of underlying hazardous constituents (UHCs) if applicable,
- Compliance with applicable treatment standards,
- Suitability for treatment by one or more methods available on site to meet treatment standards, and/or
- Suitability for treatment by one or more methods available on site to make the waste safer and more amenable to further management on site or off site.

These characterization criteria are summarized in Table B-3.

B.2.4.1 Waste to be Treated at the TTF

Explosive waste to be treated at the TTF is characterized through the use of process knowledge rather than sampling and analysis for the following reasons:

- Information from sampling analysis would not improve knowledge of the waste because the explosive (e.g., SASN) and ignitable (e.g., acetone) components of the waste are known as a result of knowledge of process and a well-defined and documented procedure for formulating SASN. Variability occurs only in the relative amounts of non-explosive liquid and solid items.
- There is currently no other available treatment option for this explosive waste stream. Sampling and analysis activities could delay or prevent timely disposition of this waste, affecting the safety of Unit personnel, and causing a threat to human health and the environment
- Personnel document the waste constituents in the operating records for formulation and testing, and sign the documentation. Prior to formulating the explosive slurry, Unit personnel screen the formulation instructions to identify changes. If the formulation has changed, personnel evaluate the constituents to check that the wastes are acceptable for treatment in the TTF. Constituents include the maximum net weight and estimated actual weight of explosives in the waste, and the non-explosive constituents in the waste. Changes in the formulation are included in the documentation for formulation and testing.

Table B-3
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Explosive waste to be treated by open burning/open detonation	Knowledge of Process[a]	• *All characterization information previously obtained* • *Knowledge of treatment process*	• Verify that waste has same characteristics and constituents as previous wastes treated at TTF • Determine treatment standards[g] • Identify UHCs reasonably expected to be present in characteristic waste[f]
Residues from treatment of explosive wastes through open burning/open detonation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • Hazardous waste metals[e] • UHCs[f]	• Determine whether treated waste meets listing criteria[h] • Determine waste form • Determine presence of free liquids • Determine waste compatibility information • Determine toxicity characteristics • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through chemical deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • Cyanides and sulfides[d] • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through chemical deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • pH (for liquids) • Stability, DOT hazard class[d] • Cyanides and sulfides • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]

Table B-3 (Continued)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Waste to be treated through thermal deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through thermal deactivation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • DOT hazard class[c] • Stability, DOT hazard class[d] • UHCs[f]	• Determine waste form • Determine ignitability and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through amalgamation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through amalgamation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • UHCs[f]	• Determine waste form • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through stabilization	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]

Table B-3 (Continued)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

Waste Type Description	Characterization Method	Parameter[b]	Rationale
Wastes that have been treated through stabilization	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form • Determine presence of free liquids • Determine ignitability and reactivity characteristics • Determine waste compatibility information • Determine whether waste meets treatment standards, including standards for UHCs[f]
Waste to be treated through macro-encapsulation	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process*	• Verify that waste is suitable for treatment by planned process • Determine treatment standards[i]
Waste that have been treated through macro-encapsulation	Knowledge of Process[a]	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process*	• Determine waste form • Determine whether waste meets treatment standards[i]
Waste to be treated through physical treatment	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained* • *Knowledge of treatment process* • UHCs[f]	• Verify that waste is suitable for treatment by planned process • Determine treatment standards • Identify UHCs expected to be present in characteristic waste[f]
Wastes that have been treated through physical treatment	Acceptable Knowledge[a] supplemented by Sampling and Analysis, as needed	• *All characterization information previously obtained for untreated waste* • *Physical characteristics* • *Knowledge of treatment process* • Visual or Paint Filter Liquids Test • Flash point (for liquids), DOT hazard class (for solids)[c] • Stability, DOT hazard class[d] • pH (for liquids) • Hazardous waste VOCs[e] • Hazardous waste SVOCs[e] • Hazardous waste metals[e] • UHCs[f]	• Determine whether waste meets listing criteria[f] • Determine waste form, including size • Determine presence of free liquids • Determine ignitability, corrosivity, and reactivity characteristics • Determine waste compatibility information • Determine toxicity characteristic • Determine whether waste meets treatment standards, including standards for UHCs[f]

Table B-3 (Concluded)
Additional Parameters, Characterization Methods, and Rationale for Wastes Treated at Sandia National Laboratories/New Mexico Waste Management Units

[a] Acceptable knowledge is broadly defined as process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Acceptable knowledge also includes published information regarding chemical properties.

[b] Parameters listed are in addition to those shown in Table B-2. Parameters shown in italics are mandatory; the others are selected based on obtaining additional information necessary for treatment or for characterizing the treated waste.

[c] The hazardous waste characteristic of reactivity as defined in 20 NMAC 4.1.200/40 CFR 261.23 [10-1-03] is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis. The presence of sulfides and cyanides may* cause waste to be reactive.

[d] The hazardous waste characteristic of ignitability as defined in 20 NMAC 4.1.200/40 CFR 261.21 for solids is based on the properties of the waste and DOT hazard class as identified in 40 CFR 173, and is not measured through analysis.

[e] Use of the terms "hazardous waste metals," hazardous waste VOCs," and "hazardous waste SVOCs" refer to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261.24 [10-1-03] and to RCRA-regulated waste as defined in the General Part B.

[f] Underlying hazardous constituents that are reasonably expected to be present in the untreated waste are part of the treatment standard for wastes exhibiting the hazardous waste characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart C (referred to as "characteristic wastes").

[g] Treatment standards are those listed in 20 NMAC 4.1.800/40 CFR 268 Subpart D. Compliance with the treatment standards is determined for treated wastes that will be sent to an off-site TSDF without further treatment.

[h] "Listing criteria" refers to hazardous waste as defined in 20 NMAC 4.1.200/40 CFR 261 Subpart D.

[i] Macroencapsulation is defined in 20 NMAC 4.1.800/40 CFR 268.42 and 268.45

CFR Code of Federal Regulations
DOT U.s. Department of Transportation
NMAC New Mexico Administrative Code
SVOC semivolatile organic compound
TSDF Treatment, storage, and disposal facility managing RCRA-regulated wastes
UHC Underlying hazardous constituents
VOC volatile organic compound

B.2.4.2 Waste to be Treated at the Existing RMWMF/Future CWMF and AHCF

Wastes to be treated at the existing RMWMF/future CWMF and AHCF will be characterized based on acceptable knowledge, supplemented by sampling and analysis if necessary before treatment takes place to meet the objectives noted above. For wastes that will be treated to meet the treatment standards, the characterization includes the presence of UHCs that are reasonably expected to be present if UHCs are part of the treatment standards.

B.2.5 Characterization of Treated Wastes

Treated wastes are characterized through knowledge of process, supplemented by analytical data as needed, using the general process described in Section B.2.1.2. In addition to the objectives listed in Section B.2.1.1, treated wastes and residues are characterized to determine one or more of the following, as applicable, for each waste:

- Whether the characteristic of interest has been treated effectively
- Compliance with applicable treatment standards if compliance is a treatment goal,
- Continued presence of UHCs that are reasonably expected to be present in the waste as generated if compliance with applicable treatment standards is a treatment goal,
- Presence of hazardous waste constituents and characteristics that could have been introduced during treatment,
- Whether the treated waste or residue requires further management as a RCRA-regulated waste, and/or
- Suitability for further treatment by one or more methods available on site to make the waste safer and more amenable to further management on site or off site.

These characterization criteria are summarized in Table B-3.

Characterization for treated wastes and residues derived from treatment processes will include consideration of both listed and characteristic wastes that were present in the untreated wastes. In particular, Sandia/DOE will follow the requirements of 20 NMAC 4.1.200/40 CFR 261.3(g) [10-1-03] in characterizing wastes that are listed solely because they exhibit one or more of the characteristics of ignitability, reactivity, or corrosivity.

Wastes that are treated using technologies specified in 20 NMAC 4.1.800/40 CFR 268.40-45 [10-1-03] will not necessarily be subjected to sampling and analysis. Such treatment technologies include but are not limited to physical treatment, deactivation, and macroencapsulation. In these cases, treatment effectiveness will be determined by visual examination of the treated waste and/or knowledge of the treatment process as discussed in Section 8.0 of Modules II, III, and V. Other treated wastes will be subjected to sampling and analysis to characterize the waste and determine the effectiveness of the treatment as appropriate.

B.2.5.1 Treated Wastes at the TTF

Waste residues from the thermal treatment of explosive (reactive) waste at the TTF include decomposition by-products. The principal by-products are ash (carbon) produced from burned solid items (e.g., paper, filters) and gases (i.e., nitrogen, water vapor, carbon dioxide, carbon monoxide, diatomic oxygen, and traces of nitrous oxides) produced by the decomposition of SASN, PETN, acetone, and acetonitrile. Elemental silver is also present in the ash when SASN is treated at the TTF.

The reactive and ignitable characteristics of the residue at the TTF is assessed by visually screening the residue in the burn pan for the presence of unreacted SASN (and PETN, as applicable).

Ash residue generated as a result of the treatment of explosive waste at the TTF is declared to be hazardous waste (D011) based on knowledge of the constituents and treatment process. Alternatively, Sandia/DOE may* use sampling and analysis to determine the silver content of the residue. The contents of the burn pan are containerized and transferred to one of the other SNL/NM Units for storage and transportation to an off-site TSDF. Sandia/DOE will characterize the residue as needed for further treatment or direct disposal at a permitted off-site TSDF.

Because the TTF is located outside, the steel-lined concrete pad periodically collects water from precipitation; the water drains into the catch tank. Unless waste spills, untreated waste “kicks out” (i.e., is ejected from the burn pan) during treatment, or otherwise contaminates the steel-lined concrete pad, the water collected in the catch tank consists of precipitation. If water collected in the catch tank is known to be contaminated with hazardous waste constituents treated at the TTF, arrangements will be made for disposal into the City of Albuquerque wastewater system with a one-time notice placed in the facility file in accordance with 20 NMAC 4.1.800/40 CFR 268.7(a)(6) [10-1-03]. If the wastewater cannot be discharged into the City of Albuquerque wastewater system, it will be handled through waste management procedures at one of the other SNL/NM Units.

B.2.5.2 Treated Wastes at the Existing RMWMF/Future CWMF and AHCF

Effectiveness of treatment is determined one or more ways that are specific to the type of treatment and the waste undergoing treatment. Evaluations are described in detail in Section 8.3 of Modules III and V. Treated wastes and residues resulting from treatment of RCRA-regulated wastes at the existing RMWMF/future CWMF and AHCF are characterized using one or more of the following methods:

- Reactive metals and metal-containing particulates treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF are deactivated using water, a water/alcohol solution, other organic liquid, or portland cement. Alcohol and other organic liquids may* exhibit the characteristic of ignitability, and can typically be characterized using knowledge of the treatment process. Unit personnel use knowledge of process and the flash point test, as needed, to determine whether the treated waste exhibits the hazardous waste characteristics of reactivity or ignitability. The treated wastes are analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not undergo further treatment on site.

- Corrosive aqueous liquids treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF are characterized for corrosivity through a pH check. The treated wastes are analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not undergo further treatment on site.

  Reactive wastes treated by chemical deactivation at the existing RMWMF/future CWMF and AHCF are characterized for the presence of sulfides and cyanides through a chemical check if their presence caused the waste to be reactive. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site.

- Reactive batteries and other small reactive/explosive items treated by thermal deactivation at the existing RMWMF/future CWMF are characterized for reactivity through knowledge of the treatment process and operations. The wastes may* also exhibit the hazardous waste characteristic of toxicity. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site.

- Elemental mercury treated by amalgamation at the existing RMWMF/future CWMF is analyzed for the presence of mercury and UHCs to determine whether the amalgam meets the treatment standards.

- Aqueous liquids treated by stabilization at the existing RMWMF/future CWMF and AHCF (including liquids that have previously been neutralized) are checked for the presence of free liquids. The treated wastes are analyzed for the presence of UHCs reasonably expected to be present in the untreated waste if they will not undergo further treatment on site.

- Oils and organic liquids exhibiting the hazardous waste characteristics of ignitability and toxicity that are treated by stabilization at the existing RMWMF/future CWMF and AHCF are characterized for ignitability through process knowledge. The wastes may* also exhibit the hazardous waste characteristic of toxicity; if so, the treated wastes are characterized through sampling and analysis. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site.

- Soils and particulates exhibiting one or more of the hazardous waste characteristics of ignitability, reactivity, and toxicity that are treated by stabilization at the existing RMWMF/future CWMF and AHCF, and may* contain UHCs. The treated wastes no longer exhibit the characteristics of ignitability and reactivity. The treated wastes are characterized for toxicity (if applicable) through sampling and analysis. The treated wastes are analyzed for the presence of UHCs if they will not undergo further treatment on site.

- Wastes exhibiting the characteristic of toxicity and/or containing or contaminated with spent solvents that are treated by macroencapsulation at the existing RMWMF/future CWMF and AHCF are visually examined to determine whether treatment met the standards.

- Wastes treated by physical treatment include components containing listed wastes and/or exhibiting the characteristics of ignitability, reactivity, corrosivity, and/or toxicity. After the items are successfully detached and separated from larger items, both items are characterized as described in Section B.2.1.2 to determine whether they are RCRA-regulated wastes.

- Wastes that are treated to reduce the size of individual pieces at the existing RMWMF/future CWMF and AHCF do not undergo further characterization because the treatment does not affect hazardous waste constituents or characteristics of the waste.

- Liquids and pressurized containers treated by physical treatment at the existing RMWMF/future CWMF are characterized separately following treatment. If the containers are empty, they are no longer RCRA-regulated waste. The collected liquids are characterized in the same manner as mixed and blended wastes (described in Section B.2.3). If the liquids will not undergo further treatment on site, they are characterized to determine compliance with treatment standards applicable to all components, including the presence of UHCs in characteristic wastes.

B.2.6 Verification and Reevaluation Frequencies [20 NMAC 4.1.500/40 CFR 264.13(a)(3)(i) and 264.13(b)(4); 20 NMAC 4.1.800/40 CFR 268.7(b)]

Sandia/DOE will review air emissions data and status at least once every 12 months for RCRA-regulated wastes subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03].

As described in previous sections, initial generators and Unit personnel obtain and evaluate information to characterize individual RCRA-regulated wastes managed at the SNL/NM Units. The evaluation needed for a single waste item depends on the item.

The duration of the characterization and its applicability to wastes generated in the future depends on the type of waste. For example, information about the contents of each container of used laboratory chemicals is applicable only to that container; however, information about the chemical composition and hazardous waste characteristics of batteries is applicable to all batteries of the same type.

The Sandia/DOE waste verification process is designed to provide additional assurance that wastes are adequately characterized for management at the Units. The process applies to the verification of wastes and waste streams received at a Unit and designated for storage and/or treatment prior to off-site disposal. Treated wastes are characterized as described in Section B.2.5, and are not subject to the verification and reevaluation procedures described in this section. Unit personnel involved in verification activities are trained and qualified for the activities they perform.

B.2.6.1 Verification of Wastes

Wastes are selected for further evaluation as part of the verification program using one or more of the following criteria:

- Random selection;
- Adequacy of information previously provided by the initial waste generators;
- Recommendations from Unit personnel;
- Incomplete or inconsistent documentation; and
- Other waste-specific criteria.

During each calendar year, Sandia/DOE will verify the characterization using personnel independent of the initial waste characterization for one percent of the SNL/NM RCRA-regulated waste items that meet all of the following conditions:

- The waste is received at a SNL/NM Unit for storage or treatment,
- The waste is not part of a waste stream,
- The waste was initially characterized through acceptable knowledge,
- The waste is not a commercial chemical product, off-specification species, container residue, or spill residue identified in 20 NMAC 4.1.200/40 CFR 261.33 [10-1-03],
- The waste is not material in a factory-sealed container or original container, and
- The information that would be obtained during the verification is needed for further management of the waste at the SNL/NM Unit (i.e., the verification will be limited to necessary information).

Once the waste is selected for verification, Unit personnel will be notified of its pending arrival at a Unit. Some wastes may* only require a visual verification of the container's contents. If the visual verification of a container's contents is found to be inconsistent with the initial generator's waste characterization documentation, further verification is required, and Unit personnel will decide whether to accept the waste for management pending resolution of the discrepancy. Depending on the severity of the discrepancy, the initial waste generator may* be subject to increased review.

For wastes that were initially characterized using acceptable knowledge, the independent personnel will review applicable waste characterization documentation to verify that it adequately describes the wastes. Verification analyses, if needed, will be conducted at SNL/NM or an approved laboratory, in conformance with appropriate methods (discussed in Section B-4).

B.2.6.2 Reevaluation of Waste Streams

Characterization information for routinely generated waste streams is evaluated periodically to verify that they have not changed. Any information that indicates a change in the process that generates the waste and may* affect the waste will cause the waste to be recharacterized no later than the next time the waste is generated.

In addition to the verification activities described above for individual wastes, Sandia/DOE will reevaluate initial characterization information for routinely generated RCRA-regulated waste streams as needed for any of the following reasons (Routinely generated waste streams are those that are generated at least once per month in quantities of 30 gallons or greater):

- To verify the accuracy of the initial waste characterization when Unit personnel suspect the characterization is not accurate;
- To verify that applicable treatment standards have been met for those wastes treated at one of the SNL/NM Units;

- When there is a change in a waste-generating process;
- When the initial generator requests a review;
- When analytical results indicate a change in a waste stream; or
- When regulatory requirements change and additional information is required for further management of the waste at SNL/NM Units.

In addition to the reevaluations performed for one or more of the reasons listed above, Sandia/DOE will reevaluate additional streams as needed for a total of ten percent of routinely-generated SNL/NM RCRA-regulated waste streams that meet all of the following conditions:

- The waste is received at a SNL/NM Unit for storage or treatment during the past 12 months;
- The waste is part of a waste stream as defined in Section B.1.2; and
- The waste stream has not been evaluated during the past 12 months for any reason, including changes in waste composition and changes in the process(es) generating the waste.

In each case, Sandia/DOE will evaluate a single randomly-selected item from the waste stream, and the reevaluation will be limited to information necessary for management of the waste at the SNL/NM Unit. The evaluation will be conducted in the same manner as evaluation of individual wastes. For wastes that were characterized using acceptable knowledge, Unit personnel will review applicable waste characterization documentation to verify that it adequately describes the wastes. Verification analyses, if needed, will be conducted at SNL/NM or an approved laboratory, in conformance with appropriate methods (discussed in Section B-4).

B.3 USE OF AVAILABLE KNOWLEDGE

Sandia/DOE's approach to waste characterization is based on use of existing information (i.e., available knowledge) regarding the chemical and physical nature of the waste or waste stream and the activities that generated it, supplemented by data from sampling and analysis as needed to provide sufficient information to answer the questions discussed in Section B.2.1.1. This approach is consistent with EPA and EPA/NRC guidance (EPA, 1994) and (EPA/NRC, 1997).

The physical and chemical nature of some waste forms at SNL/NM makes the collection of representative samples for characterization difficult. This difficulty arises from several factors, some of which include: waste types containing disparate elements; disparate elements that may* need to be segregated into similar forms; large objects that cannot fit within standard size sample containers; and laboratories that do not have the capability to sample large objects (EPA, 1992). Other difficulties arise from health and safety risks to personnel due to potential exposure to explosive material, radiation, or other hazards. Acceptable knowledge is a method used to characterize the waste forms utilizing process knowledge and additional waste analysis data, as necessary. Acceptable knowledge will be used to meet all or part of the waste analysis requirements and to direct subsequent sampling and analysis if they are needed.

B.3.1 Acceptable Knowledge [20 NMAC 4.1.500/40 CFR 264.13(a)(2) and 264.13(b)(5); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

According to EPA guidance, acceptable knowledge is broadly defined to include process knowledge, supplemental waste analysis data, and/or facility records of analysis (EPA, 1994). Process knowledge is described in 20 NMAC 4.1.500/40 CFR 264.13(a)(2) [10-1-03], as data developed under 20 NMAC 4.1.200/40 CFR 261 [10-1-03] and existing published or documented data on a specific RCRA-regulated waste or a waste generated from similar processes. Supplemental waste analysis data include concentration(s) of hazardous waste constituents and/or results of tests for hazardous waste characteristics to determine whether wastes are RCRA regulated. Records for some unknown liquids and solids may* include waste analysis and/or physical characterization performed prior to the effective date of RCRA regulations. In order to be acceptable, such analytical results must be accurate and applicable to the specified waste and are typically supplemented with other existing information (e.g., published data).

Examples presented in the EPA guidance (EPA, 1994) as to when the application of acceptable knowledge is appropriate include:

- Wastes containing hazardous waste constituents from specific processes that are well documented;
- Wastes consisting of discarded commercial chemical products, reagents, or chemicals containing known physical and chemical constituents (e.g., spent solvents);
- Waste containing levels of radioactivity such that health and safety risks to personnel do not justify sampling and analysis due to quantified and documented radiological concerns; and
- Wastes containing heterogeneous materials, where the physical nature of the waste does not lend itself to taking a representative sample (e.g., laboratory trash and construction debris with surface contamination).

Waste characterization documentation based solely on acceptable knowledge is approved by Unit personnel if one or more of the above criteria have been met. The criteria are provided or available for review by Unit personnel to ensure that a valid and accurate RCRA-regulated waste characterization can be made. Acceptable knowledge documentation will be maintained in the Unit operating record.

B.3.2 Process Knowledge

Process knowledge, a subset of acceptable knowledge, consists of one or more of the following:

- Detailed information on a waste or waste stream obtained from existing published or documented waste analysis data;
- Studies conducted on RCRA-regulated wastes generated by processes similar to that which generated the waste; and

- Knowledge of the materials and operations that generated the waste and that demonstrates the potential for hazardous constituents in the waste. For example, metals present in debris waste are often associated with specific materials (e.g., lead in leaded rubber or lead shielding).

Process knowledge documentation for each RCRA-regulated waste or waste stream is kept in the operating record of the Unit with other waste characterization information, or in a reference file that includes the documents or identifies them and their locations. The reference file is also part of the operating record. The documentation is explicitly relevant and traceable to a given waste or waste stream. There are many sources of applicable documentation at SNL/NM that are used to substantiate process knowledge for a specific waste or waste stream. Examples of documentation that are used for waste characterization include the following:

- MSDSs, product labels, and other product package information;
- Process design documents;
- Preliminary and final reports and analyses of the operations generating the waste;
- Information from operating procedures, which can include a list of the raw materials or reagents, a description of the process/experiment that uses the materials, and a description of the wastes generated and how the wastes are handled;
- Waste packaging logs;
- Test plans or research project reports that describe the reagents and other raw materials used in an experiment;
- Laboratory notebooks that detail the research processes and raw materials used in an experiment;
- Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements);
- Information from personnel (e.g., documented interviews);
- Standard industry practice documents (e.g., vendor information);
- Industry reports on a similar process when there is a clear connection between the SNL/NM process/experiment and the industry's similar process/experiment;
- Previous analytical data relevant to the waste or waste stream, including results from fingerprint analyses, spot checks, or routine waste verification sampling;
- Analytical data from studies of common industry processes that are similar to SNL/NM processes. These data can be used to identify the constituents in a specific “similar” process waste and to determine the regulatory status of the waste;

- Sampling and analysis data from comparable wastes or waste streams;
- Analysis of a surrogate waste or waste stream;
- Documented visual inspections to confirm or identify the physical characteristics and packaging of a waste; and
- ER site and waste characterization data.

B.4 WASTE SAMPLING AND ANALYSIS [20 NMAC 4.1.500/ 40 CFR 264.13(a)(1)]

Chemical and physical characterization and/or acceptable knowledge are applicable to all RCRA-regulated waste for management purposes, as required by 20 NMAC 4.1.500/40 CFR 264.13 [10-1-03]. Initial waste generators and Unit personnel select analytical parameters to ensure that the characterization documentation will contain the information necessary to properly treat and/or store waste in accordance with RCRA general facility standards and LDR requirements.

Sandia/DOE will also obtain characterization information to meet the requirements of the off-site TSDFs that accept RCRA-regulated wastes that have been generated at SNL/NM. Management (including disposal) of Sandia/DOE wastes at off-site TSDFs is outside the scope of the permitted activities conducted at SNL/NM, and is not addressed further in this WAP.

Sampling and analytical procedures and sampling frequencies that are applicable to RCRA-regulated waste are discussed in this section. Sampling and analysis is generally performed to provide supplemental information when a waste lacks sufficient process information to adequately characterize the waste based on acceptable knowledge. The approach described for characterizing these wastes is based on the physical, chemical, and hazardous properties of the waste; and on the amount and type of knowledge/information available.

Quality assurance/quality control (QA/QC) for sampling and analysis will be implemented to ensure that measurement data collected meets the information objectives for waste characterization. QA/QC will be implemented by adhering to the sampling protocol and analytical procedures specified in this section; documenting sampling activities and sample custody; using controlled and standard equipment and materials; and collecting, analyzing, and evaluating field and laboratory QA/QC samples.

B.4.1 Proposed Analytical Parameters and Methods [20 NMAC 4.1.500/40 CFR 264.13(b)(1); 20 NMAC 4.1.900/40 CFR 270.14(b)(2)]

Analytical parameters and characterization methods that are used for RCRA-regulated waste stored and/or treated at SNL/NM Units are summarized in Tables B-2 and B-3. As noted in Sections B.2.1, and B.2.4, the RCRA regulatory status of these wastes is determined through consideration of the following:

- Acceptable knowledge, supplemented by
- Sampling and analysis to determine the presence (and concentrations) of:
  - Hazardous waste metals (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.200/40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Hazardous waste volatile organic compounds (VOCs) (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.200/40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Hazardous waste semivolatile organic compounds (SVOCs) (i.e., constituents of characteristic and listed wastes as defined in 20 NMAC 4.1.200/40 CFR 261.24 and Part 261 Subpart D [10-1-03])
  - Other hazardous waste characteristics (i.e., ignitability, reactivity, corrosivity)
  - UHC metals, volatile organic compounds, and semivolatile organic compounds (defined in 20 NMAC 4.1.800/40 CFR 268..48 [10-1-03]) that are reasonably expected to be present in wastes exhibiting hazardous waste characteristics.
- Fingerprint analysis, or
- HazCat™ or other field tests.

B.4.2 Criteria and Rationale for Parameter Selection [20 NMAC 4.1.500/ 40 CFR 264.13(b)(1)]

As described above, waste analysis parameters are selected to characterize RCRA-regulated waste in conformance with 20 NMAC 4.1.500/40 CFR 264.13(b)(1) [10-1-03], to obtain information necessary to properly store and/or treat waste at SNL/NM Units in accordance with 20 NMAC 4.1.500/40 CFR 264 and 20 NMAC 4.1.800/40 CFR 268 [10-1-03]. The analytical parameters selected to supplement and confirm knowledge-based waste characterization for RCRA-regulated waste types and the rationale for the selected parameters are summarized in Tables B-2 and B-3. Table B-4 identifies the applicable analytical testing requirements and specific test methods for the parameters of interest, including UHCs discussed in Sections B.2.4 and B.2.5.

B.4.3 Waste Sampling

The objective of waste sampling is to obtain a sample or samples representative of the waste or waste stream. An understanding of the waste-generating and -handling processes is considered to ensure that samples are representative. Some wastes separate into distinct layers with time, and representative samples must include aliquots from each layer. In some cases, it may* be important to use a statistical or random sampling scheme that provides for the collection of representative samples.

Table B-4
Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste

Parameter	Method Numbers[b]	Rationale
VOC in waste matrix		
Spent halogenated solvents	ASTM Method D4547-91[c] or equivalent method EPA/540/4-91/001[d] or equivalent methods[e] EPA Methods SW-846 (8260B)[f] or equivalent methods[e]	Determine total and/or TCLP and SVOC/VOC concentration in samples of solids or liquids
Spent nonhalogenated solvents	EPA Methods SW-846 (1311, 8260B, 8275A)[f] or equivalent methods[e] Methods included in 20 NMAC 4.1.600/40 CFR 265.1084(a)(2), (a)(3), and (a)(4)	
Underlying hazardous constituents[a] that are VOCs[a]	ASTM Method D4547-91[c] or equivalent method EPA/540/4-91/001[d] or equivalent methods[e] EPA Methods SW-846 (1311, 8260B, 8275A)[f] or equivalent methods[e]	Determine whether treated wastes meet treatment standards
SVOCs in waste	EPA Methods SW-846 (1311 and 8270C)[f] or equivalent methods[e]	Determine total and/or TCLP and SVOC concentration in samples of solids or liquids
Underlying hazardous constituents[a] that are SVOCs[a]	EPA Methods SW-846 (1311 and 8270C)[f] or equivalent methods[e]	Determine whether treated wastes meet treatment standards
Metals in waste	EPA Methods SW-846[f]:	
Arsenic	(1311, 6010B, 7060A, 7061A)[e]	
Barium	(1311, 6010B, 7080A, 7081)[e]	
Cadmium	(1311, 6010B, 7130, 7131A)[e]	
Chromium	(1311, 6010B, 7190, 7191)[e]	
Lead	(1311, 6010B, 7420, 7421)[e]	
Mercury	(1311, 7470B, 7471A)[e]	
Selenium	(1311, 6010B, 7740, 7741A, 7742)[e]	
Silver	(1311, 6010B, 7760A, 7761)[e] or equivalent methods[e]	Determine total and/or TCLP concentration in samples of solids or liquids
Underlying hazardous constituents[a] that are metals:	EPA Methods SW-846[f]:	
Same metals listed above (except selenium)	same methods for metals listed above	
Antimony	(1311, 6010B, 7040, 7041)[e]	
Beryllium	(1311, 6010B, 7090, 7091)[e]	
Cyanides (total)	(1311, 9010B, 9012A)[e]	
Cyanides (amendable)	(1311, 9010B, 9012A)[e]	
Nickel	(1311, 6010B, 7520, 7521)[e]	
Thallium	(1311, 6010B, 7840, 7841)[e] or equivalent methods[e]	Determine whether treated wastes meet treatment standards
Reactive Sulfide	EPA Methods SW-846, Test Method to Determine Hydrogen Sulfide Released from Wastes[g] or equivalent methods[e] EPA Methods SW-846 (9030B, 9031, 9034)[f] or equivalent methods[e]	Determine concentration of reactive sulfides

Table B-4 (Concluded)
Summary of Analytical Characterization Methods Used for Resource Conservation and Recovery Act-Regulated Waste

Parameter	Method Numbers[b]	Rationale
Paint Filter Liquids Test	EPA Methods SW-846 (9095)[f] or equivalent methods[e]	Determine presence of free liquids
Flash Point	EPA Methods SW-846 (1010, 1020, 1030)[f] or equivalent methods[e]	Determine ignitability
pH	EPA Methods SW-846 (9040B, 9041A, 9045C)[f] or equivalent methods[e]	Determine corrosivity
Explosives in waste	EPA Methods SW-846 (Appropriate analytical method from the Method 8300 series 8330)[f]	Determine reactivity

[a] Analyses are limited to determining whether treated wastes meet the universal treatment standards for the underlying hazardous constituents that can reasonably be expected to be present at the point of generation of the hazardous waste, as provided in 20 NMAC 4.1.800/40 CFR 268.48 [10-1-03].
[b] Sandia/DOE use the most current methods for analysis. Method numbers are subject to change through future updates and may* vary from those shown in this table.
[c] American Society for Testing and Materials, 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," ASTM D4547-91, *Annual Book of ASTM Standards*, Philadelphia, Pennsylvania, American Society for Testing and Materials. (ASTM, 1991)
[d] U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds," EPA 1/540/4-91/001, Office of Research and Development. (EPA, 1991)
[e] Equivalent methods may* be substituted to accommodate waste-specific properties.
[f] U.S. Environmental Protection Agency, 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[g] SW-846, Section 7.3.4.2 contains specialized methods to determine if a sulfide-containing waste exhibits the reactivity characteristic.

A number of criteria are considered in determining how many samples are required, how sampling locations are selected, and how frequently sampling should be repeated. If the waste is a highly uniform waste stream from a single process location, one grab sample collected periodically is sufficient. However, if a single waste type is a mixture of materials generated in several locations under varying conditions through time, more samples will be required, and composite sampling may* be appropriate. At a minimum, the sampling is repeated if the waste-generating process changes in a material way, or if inspection of the waste reveals it has changed.

Appendix I of 20 NMAC 4.1.200/40 CFR 261 [10-1-03] lists specific guidance documents that detail sampling protocols for different waste types. Waste samples collected in accordance with these protocols are considered representative by EPA. The protocols include standards developed by the American Society for Testing and Materials (ASTM) and portions of “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846” (EPA, 1986 and all approved updates), hereinafter referred to as SW-846. Personnel involved in sampling and analysis comply with relevant and applicable protocol that is consistent with SW-846 or other equivalent methods. Detailed sampling recommendations and guidance are provided in Chapter 9 of SW-846. These methods are designed to ensure that representative waste samples are consistently collected and transferred to the responsible laboratory in a manner that maintains sample integrity.

A representative sample of the waste is collected and handled by means that preserve its original physical form and composition and prevent contamination or changes in the concentration(s) of the constituent(s) to be analyzed.

The following sampling strategies are used for waste sampling at SNL/NM unless an alternative sampling strategy is more appropriate for a specific waste item based on specific historical, process, or waste information:

- Sampling activities are conducted in a manner that minimizes the generation of waste;
- If the sampling or analysis of the waste would pose a serious threat to human health, Sandia/DOE will forego sampling and analysis;
- For heterogeneous solid items, such as contaminated debris, samples will be obtained from areas that are most likely to be contaminated, based on visual inspection of the waste or knowledge of the activity that generated the waste;
- For solid items whose surface is suspected to be contaminated with RCRA-regulated waste, such as contaminated equipment, surface wipe samples will be taken;
- For solid items with compositions that may* exhibit hazardous waste characteristics, a sample will be taken and analyzed from the waste or from a nonwaste item similar to the waste item;
- Samples will be collected from each phase of wastes that exist in multiple solid, liquid, and/or gas phases;
- For liquid waste items in multiple containers, one sample will be taken for each container or each 55 gallons of waste, whichever is larger;
- For solid items in multiple containers, one sample will be taken for each container or each 10 cubic yards of waste, whichever is larger; and
- Handling and collection techniques are consistent with SW-846 and conducted to preserve the nature of the waste sample.

Table B-5 lists the applicable requirements specified in SW-846 regarding sample containers, preservation techniques, and holding times associated with sample collection.

B.4.4 Waste Analysis

Analytical methods for the determination of hazardous waste metals, VOCs, SVOCs, and the hazardous waste characteristics of ignitability, reactivity, and corrosivity are implemented to meet certain technical performance criteria and to be consistent with regulatory guidelines.

Table B-5
Recommended Sample Containers[a], Preservation Techniques, and Holding Times[b]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Volatile Organics			
Concentrated Waste Samples:	Method 5035[b]: 40-milliliter (mL) vials with stirring bar. Method 5021: See method. Methods 5031 & 5032: 125-mL WM[c]-G[d]. Use Teflon-lined lids for all procedures.	Cool to 4º degrees Celsius (ºC)[e]	14 days
Aqueous Samples:			
No Residual Chlorine Present	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Cool to 4ºC and adjust pH[f] to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$	14 days
Residual Chlorine Present	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Collect sample in a 125-mL container which has been pre-preserved with 4 drops of 10% sodium thiosulfate solution. Gently swirl to mix sample and transfer to a 40-mL volatile organic analysis (VOA) vial. Cool to 4ºC and adjust pH to less than 2 with H_2SO_4, HCl, or solid $NaHSO_4$	14 days
Acrolein and Acrylonitrile	Methods 5030, 5031, & 5032: 2 x 40-mL vials with Teflon-lined septum caps.	Adjust to pH of 4-5. Cool to 4ºC	14 days
Soil/Sediments and Sludges:	Method 5035: 40-mL vials with stirring bar. Method 5021: See method. Methods 5031 & 5032: 125-mL WM[c]-G[d]. Use Teflon-lined lids for all procedures.	See the individual method	14 days
Semivolatile Organics/Organochlorine Pesticides and Herbicides			
Concentrated Waste Samples:	125 mL WM[c]-G[d] with Teflon®-lined lid	None	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Soil/Sediments and Sludges:	250 mL WM[c]-G[d] with Teflon®-lined lid	Cool to 4ºC	Samples must be extracted within 14 days and analyzed within 40 days following extraction.

Table B-5 (Concluded)
Recommended Sample Containers[a], Preservation Techniques, and Holding Times[b]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Liquid Samples:			
No Residual Chlorine Present	1-gallon (gal.), 2 x 0.5 gal., or 4 x 1 liter (L) AG[g] container with Teflon®-lined lid	Cool to 4ºC	Samples must be extracted within 7 days and extracts analyzed within 40 days following extraction
Residual Chlorine Present	1-gal., 2 x 0.5 gal., or 4 x 1-L AG[g] with Teflon -lined lid	Add 3-mL 10% sodium thiosulfate solution per gallon (or 0.008%). Addition of sodium thiosulfate solution to sample container may* be performed in the laboratory prior to field use. Cool to 4ºC.	Samples must be extracted within 7 days and extracts analyzed within 40 days following extraction
Metals			
Aqueous Samples:			
Metals (except hexavalent chromium and mercury)	1-L P[h] or G[d]	Add nitric acid to adjust pH to less than 2.	180 days
Hexavalent chromium	500-mL P[h] or G[d]	Cool to 4ºC	24 hours
Mercury	500-mL P[h] or G[d]	Add nitric acid to adjust pH to less than 2.	28 days
Soil/Sediments and Sludges:			
Metals (except hexavalent chromium and mercury)	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	180 days
Hexavalent chromium	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	Not established - analyze as soon as possible.
Mercury	500-mL WM[c]-P[h] or G[d]	Cool to 4ºC	28 days

All information on test methods from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846,* U.S. Environmental Protection Agency, 1986 and all approved updates. Note that all information is subject to change through future updates.

[a] Smaller sample containers may* be required due to health and safety concerns associated with potential radiation exposure, transportation requirements, and waste management considerations.

[b] Information primarily from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846,* U.S. Environmental Protection Agency, 1986 and all approved updates.

[c] WM = Wide-mouth

[d] G = Glass

[e] Adjust to pH of less than 2 with sulfuric acid, hydrochloric acid, or solid sodium bisulfate.

[f] A term used to describe the hydrogen-ion activity of a system.

[g] AG = Amber glass

[h] P = Polyethylene

Solid items may* be heterogeneous or homogeneous. If necessary for waste characterization purposes, these solids will be analyzed for total concentrations of hazardous waste metals, VOCs, and SVOCs (see Table B-4 for specific analytical methods). If necessary for waste characterization purposes, homogeneous wastes will be sampled and analyzed for the TC constituents listed in 20 NMAC 4.1.200/40 CFR 261.24 [10-1-03]. If analysis for total concentration of TC constituents will be performed on samples, it will be done as a screening step, as described in Section 1.2 of Method 1311, Toxicity Characteristic Leaching Procedure (TCLP). If total concentrations are used in the waste characterization process, analytical data will be compared to the TC regulatory levels expressed as total values. These total values will be considered the regulatory threshold limit (RTL) values for the determination of whether a particular waste exhibits a TC. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a TC constituent that would give the regulatory weight/volume concentration in the TCLP extract. If the total concentrations are less than the RTL value, the waste cannot exhibit the toxicity characteristic and the TCLP does not need to be completed for the screened TC constituents.

Liquid wastes typically consist of aqueous solutions, slurries, and organic liquids. If necessary for waste characterization purposes, these wastes will be sampled and analyzed for total concentrations of hazardous waste metals, VOCs, SVOCs, and for the hazardous waste characteristics of ignitability, reactivity, corrosivity, and toxicity (see Table B-4 for specific analytical methods). In accordance with Method 1311 (TCLP), liquid wastes (i.e., those wastes that contain less than 0.5 percent dry solids) do not require extraction. The liquid waste, after filtration, is defined as the TCLP extract. Liquid waste, therefore, will be characterized by filtering the waste, measuring total constituent concentrations in the resulting filtrate, and comparing these concentrations to the TC regulatory levels in 20 NMAC 4.1.200/40 CFR 261.24 [10-1-03].

B.4.4.1 Sample Handling, Preservation, and Storage

Table B-5 lists QA/QC requirements specified in SW-846 regarding sample containers, preservation techniques, and holding times associated with sample collection. Adherence to these requirements will ensure that sampling and analysis meet quality objectives for data. In the event that the specified criteria are not met, Sandia/DOE will evaluate the data for usability.

Many analytical laboratories provide sample containers and specify required minimum volumes for individual waste types or physical states. The most important determinants of sampling method and volume are the physical state of the waste (liquid, solid, sludge), the waste container, accessibility, waste variability, and safety concerns. Detailed sampling recommendations and guidance are provided in Chapter 9 of SW-846. For solids, 500 grams in a glass container is usually adequate. Liquid sample volumes vary from one liter to approximately eight liters, depending on the number of analytical parameters and solids content. Sample jars for samples to be analyzed for VOCs must be completely filled to minimize volatilization of constituents from the liquid into the “head space.”

Sampling is performed with a device appropriate for the waste being sampled. Weighted bottles, bailers, or composite liquid waste samplers are appropriate for sampling liquids in drums. Augers, triers, scoops, and shovels are useful for sampling solid items in containers or other locations.

B.4.4.2 Analytical Laboratory Selection and Analytical Methods [20 NMAC 4.1.500/40 CFR 264.13(b)(2)]

Analytical laboratories will perform the detailed qualitative and quantitative chemical analyses specified in SW-846 or equivalent methods that are listed in Table B-4 and applicable to the parameter(s) associated with a particular waste type. These laboratories must have:

- A documented comprehensive QA/QC program,
- Technical analytical expertise,
- A document control/records management plan, and
- The capability to perform data reduction, validation, and reporting.

The selection and development of analytical testing methods for SNL/NM waste types were based on the following considerations:

- The physical form of the waste,
- Constituents of interest,
- Required detection limits (e.g., regulatory thresholds), and
- Information requirements (e.g., waste characterization, verifying compliance with LDR treatment standards for wastes treated at an SNL/NM Unit).

Collectively, these factors contributed to the selection of the analytical methods specified in Table B-4. Approved laboratories that meet the above criteria will analyze waste samples for hazardous waste constituents (e.g., VOCs, SVOCs, and metals) and characteristics (i.e., ignitability, reactivity, corrosivity, toxicity), according to the specifications in Table B-4.

B.5 OFF-SITE WASTE ACCEPTANCE PROCEDURES [20 NMAC 4.1.500/ 40 CFR 264.13(a)(3)(ii) and (a)(4), 264.13(b)(5), and 264.13(c)]

RCRA-regulated wastes from off-site sources will be accepted at SNL/NM. These wastes and sources include:

- RCRA-regulated wastes generated by Sandia employees (or contractors in the service of Sandia) outside the KAFB boundary will be accepted for storage and/or treatment if the wastes are properly characterized and transported.
- Wastes or waste residuals associated with off-site treatment of Sandia/DOE wastes or waste streams managed or treated by off-site facilities will be returned to SNL/NM for storage and/or treatment if all such wastes are properly characterized and transported.
- Wastes will be received from other (non-Sandia) off-site DOE facilities for final characterization, storage, treatment, and/or transport to other off-site facilities, only if all such wastes are properly characterized and transported.

The general waste acceptance procedures that will be used when RCRA-regulated wastes are accepted from off-site sources are discussed below. These procedures will be used to meet the requirements of 20 NMAC 4.1.500/40 CFR 264.13(a)(3)(ii), 264.13(a)(4), 264.13(b)(5), and 264.13(c) [10-1-03]. The process used for managing off-site wastes at SNL/NM is diagrammed in Figure B-1 and explained below.

The basis for characterization of RCRA-regulated wastes or waste streams to be accepted by Sandia/DOE is generator documentation of the waste. Prior to waste shipment to SNL/NM, the appropriate Unit personnel receive a waste transfer request and characterization data from an off-site generator. Unit personnel review the request from the off-site generator for completeness and conformance with the waste characterization objectives and process described in Section B.2 of this WAP.

For wastes received from off-site small quantity and large quantity generators, Sandia/DOE will require an LDR notification that addresses LDR requirements applicable to the specific waste type and will inform the generators in writing that Sandia/DOE has the appropriate permit(s) for and will accept the waste (20 NMAC 4.1.500/40 CFR 264.12[b] [10-1-03]).

After the documentation has been reviewed and determined to be complete, the waste will be shipped to SNL/NM where the shipment records, LDR Notification Forms (if needed), Uniform Hazardous Waste Manifest (if needed), and proper generator signatures are reviewed to ensure the accuracy and completeness of documentation and compliance with container management requirements. If discrepancies are found, acceptable options for resolution include shipment of the waste back to the off-site generation facility, or temporary storage pending further analysis or characterization.

B.5.1 Waste Manifest Verification

Each Uniform Hazardous Waste Manifest that accompanies a waste shipment is checked for the following information:

- The shipment identification number;
- The name, address, and EPA identification number of the generator;
- The name and EPA identification number of the transporter;
- The destination of the waste shipment (i.e., SNL/NM) including the facility address and EPA identification number;
- Any EPA Hazardous Waste Numbers
- The proper U.S. Department of Transportation (DOT) shipping name and number;
- The quantity (e.g., weight) of waste in the shipment;

- The number and type of containers in the shipment; and
- A signed and dated certification of the contents of the shipment.

B.5.2 Waste Shipment Verification

A visual inspection of the shipment will be conducted by Unit personnel to ensure that the number and type of container(s) match the manifest and the labeling on the container(s) is complete and matches the manifest. If discrepancies are found, acceptable options for resolution include shipment of the waste back to the off-site generation facility, or temporary storage pending further analysis or characterization. If any discrepancies between the shipment and associated documentation are found that cannot be resolved within 15 days after receiving the waste, Sandia/DOE will send a notification to the New Mexico Environment Department in accordance with 20 NMAC 4.1.500/40 CFR 264.72 [10-1-03].

B.5.3 Waste Description Verification

Unit personnel review waste data, including acceptable knowledge, sampling and analysis data, and treatment records for completeness following the process described in Section B.2 of this WAP. The exact parameters to be verified are determined by Unit personnel at the time of waste receipt, based upon the generator-supplied information .

Fingerprint analyses will typically be conducted by Unit personnel for waste received from off site in one-time quantities larger than 30 gallons to verify the waste characterization information provided by the generator. The parameters (e.g., specific gravity, color, flash point, and pH) that are tested by fingerprint analysis are based on the information provided by the generator and the expected characterization of the waste.

If the fingerprint analyses results do not match the waste characterization designated on the accompanying Uniform Hazardous Waste Manifest, Unit personnel will perform waste characterization analyses described in Section B.4 of this WAP or send the waste back to the facility where it was initially generated.

B.6 SPECIAL PROCEDURAL REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264.13(b)(6)]

RCRA-regulated waste management requirements specific to ignitable, reactive, and incompatible waste, as well as for compliance with LDR and 20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC [10-1-03] regulations, are described below.

B.6.1 Procedures for Ignitable, Reactive, and Incompatible Wastes

Pursuant to 20 NMAC 4.1.500/40 CFR 264.17 [10-1-03], Unit personnel take the necessary precautions to prevent accidental ignition or reaction of wastes at SNL/NM Units. Unit personnel also take the necessary precautions to ensure that incompatible wastes are identified and managed

appropriately. These precautions are described in Section 1.1.2 of the General Part B and in Section 1.2.2 of each Unit-specific module.

As described in those sections, Sandia/DOE rely on waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994] or other chemical or engineering handbooks) for each waste in a planned treatment or repackaging operation involving ignitable, reactive, and incompatible wastes. This includes, but is not limited to, the segregation of these wastes according to compatibility groups (e.g., flammables/ignitables, oxidizers, corrosive acids, reactive with water, corrosive bases, and other reactives) and by the physical nature of the waste (i.e., liquids and solids).

B.6.2 Procedures to Ensure Compliance with LDR Requirements [20 NMAC 4.1.800/40 CFR 268.7(b), 268.9(b), and 268.9(d)]

Pursuant to 20 NMAC 4.1.800/40 CFR 268 [10-1-03], Sandia/DOE will comply with LDR requirements for wastes stored or treated at the SNL/NM Units through compliant management of wastes subject to LDR storage prohibitions, and through characterization of treated waste (i.e., RCRA-regulated wastes treated at SNL/NM Units) for LDR compliance, and processing of the applicable LDR certifications and notifications for such treated wastes.

B.6.2.1 Storage Prohibitions (20 NMAC 4.1.800/40 CFR 268.50)

RCRA-regulated wastes are restricted from land disposal under 20 NMAC 4.1.800/40 CFR 268, Subpart C [10-1-03] unless they meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268 Subpart D. Restricted wastes (i.e., wastes that do not meet the applicable treatment standards) can be stored for up to one year at SNL/NM Units in compliance with 20 NMAC 4.1.800/40 CFR 268.50. Sandia/DOE assume that all of the RCRA-regulated wastes at SNL/NM are restricted from land disposal (i.e., they do not meet the applicable treatment standards) and apply the one-year storage limit to all RCRA-regulated wastes stored at any Unit except as noted below:

- RCRA-regulated wastes that are subject to the Federal Facilities Compliance Order (FFCO) (NMED 1995, as amended) between DOE, Sandia, and NMED can be stored at SNL/NM Units for more than one year even if they do not meet the treatment standards. Information about FFCO applicability is maintained in the operating record described in Section 9.0 of the General Part B.

- RCRA-regulated wastes that are not subject to the FFCO and do not meet the treatment standard(s) could be stored at SNL/NM Units for more than one year, solely for the purpose of accumulating sufficient quantities of RCRA-regulated waste to facilitate proper recovery, treatment, or disposal, in accordance with 20 NMAC 4.1.800/40 CFR 268.50(c). Information regarding proper recovery, treatment, or disposal is maintained in the operating record described in Section 9.0 of the General Part B.

- RCRA-regulated wastes that meet the treatment standards are not subject to the one-year storage limit. These wastes are characterized to determine compliance with the applicable treatment standard(s) using the process described in Section B.6.2.2. Analytical data or other information demonstrating compliance with the applicable treatment standard(s) is maintained in the operating record described in Section 9.0 of the General Part B.

B.6.2.2 Characterization for LDR Compliance: Wastes Generated Through Treatment of RCRA-Regulated Wastes at SNL/NM Units

RCRA-regulated waste generated through treatment at SNL/NM Units (e.g., treated waste, treatment residue) is characterized to determine whether it meets the applicable LDR treatment standards in 20 NMAC 4.1.800/40 CFR 268, Subpart D [10-1-03]. The information required of Sandia/DOE as the generator of the treated waste is dependent on any subsequent treatment that will be performed and the ultimate disposal method; therefore, Sandia/DOE characterize the treated waste specifically to meet the requirements of the off-site TSDF receiving it. The requirements of the off-site TSDF are based on their permit conditions and the treatment and/or disposal method.

Waste that must meet concentration-based treatment standards prior to shipment off site for disposal will be evaluated to determine if applicable constituent concentration levels have been attained, as described in Section B.2.5. Section B.2.5 includes a discussion of the criteria used to determine if acceptable knowledge is appropriate for characterizing a waste or waste stream with respect to LDR compliance. Likewise, if a waste must be treated by one or more specified treatment methods (e.g., macroencapsulation) prior to land disposal, analytical testing to certify LDR compliance for the waste before treatment is generally not necessary, as described in Section B.2.5.

If acceptable knowledge or use of a specified treatment technology is not appropriate for determining LDR compliance status, the treated waste will be sampled and analyzed to certify that it meets LDR treatment standards. The analysis will determine the total concentration of hazardous waste constituents in the treatment residue, or the concentrations of hazardous waste constituents in an extract of the residue obtained using Test Method 1311 in SW-846, as appropriate for the individual waste. Analytical results obtained in support of LDR requirements will be retained within the Unit operating record. Characterization of treatment residues for LDR compliance will include hazardous waste constituents that were introduced as part of the treatment process, as discussed in Section B.2.5.

For wastes generated through treatment at one of the SNL/NM Units, SNL/NM will comply with the applicable requirements of 20 NMAC 4.1.800/40 CFR 268.7(b), 268.9(b) and (d), 268.40(c), and 268.49 [10-1-03]. RCRA-regulated treatment residues that are determined through analysis or acceptable knowledge to meet treatment standards as specified in 20 NMAC 4.1.800/40 CFR 268, Subpart D [10-1-03], will be sent to a permitted TSDF for disposal without further treatment. Wastes that have been generated through treatment using technologies specified in 20 NMAC 4.1.800/
40 CFR 268.42, 268.44, or 268.45 [10-1-03] will also be sent to a permitted TSDF for disposal without further treatment. Residues that do not meet all of the applicable treatment standards will be sent to a permitted TSDF for further treatment.

Whenever Sandia/DOE send waste to an off-site TSDF for treatment and/or disposal as described above, it is in accordance with that facility's waste acceptance criteria. For treated wastes and residues generated at Units through treatment operations described in the General Part B and Unit-specific modules, Unit personnel review the LDRs as they relate to the further treatment and/or disposal of the treated waste at the TSDF that will accept the waste. Sandia/DOE obtain approval from the TSDF and meet TSDF-specific waste analysis requirements (including LDR requirements) prior to shipment.

Part of this review includes evaluating the waste for UHCs and Universal Treatment Standards for the treated wastes, and documenting the results of the evaluation as part of the certification process. UHCs must be declared if reasonably expected to be present in D001 through D043 wastes. Unit personnel complete an appropriate LDR notification form (including signed certification) that accompanies the Uniform Hazardous Waste Manifest as part of the shipping documentation to the TSDF. Records are maintained at Sandia/DOE as discussed in Section 9.0 of the General Part B.

B.6.2.3 Characterization for LDR Compliance: Wastes From Off-Site Sources

For wastes received from off-site large quantity generators, Sandia/DOE will require an LDR notification that addresses LDR requirements applicable to the specific waste type. If off-site wastes are treated at SNL/NM, Sandia/DOE will comply with the requirements of 20 NMAC 4.1.800/40 CFR 268.7(b) [10-1-03] as discussed above.

When shipping the waste to an off-site TSDF, Sandia/DOE will use the process described in Section B.5.2.2 for characterizing the waste in accordance with that facility's waste acceptance criteria.

B.6.3 Procedures to Ensure Compliance with Air Emission Requirements [20 NMAC 4.1.500/40 CFR 264, Subparts AA, BB, and CC]

Sandia/DOE manage wastes that are subject to some of the requirements in 20 NMAC 4.1.500/ 40 CFR 264, Subparts AA, BB, and CC [10-1-03] as discussed in Section 1.1.4.6 of the General Part B. Sandia/DOE wastes and waste streams described in this WAP may* be subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 20 NMAC 4.1.500/ 40 CFR 264.1080 [10-1-03]. For wastes that are not eligible for exemption under 20 NMAC 4.1.500/40 CFR 264.1080(b) [10-1-03], Sandia/DOE will address the applicable 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] requirements for control of air pollutant emissions from each Unit subject to the regulations, as follows:

- In lieu of determining the concentration of VOCs in a waste or waste stream at the point of origination, Sandia/DOE may* declare that a container holding waste that contains VOCs is subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC.

- To establish 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] applicability for a specific waste or waste stream, the initial generator will follow the waste determination procedures specified in 20 NMAC 4.1.500/40 CFR 264.1083(a) [10-1-03] to determine the concentration of VOCs in the waste or waste stream at the point of origination and document this determination or assume/declare that the waste is subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03] as listed above. Acceptable knowledge or process knowledge will be used to make this determination; however; if sampling and analysis is necessary, it will be performed in accordance with the approved methods listed in Tables B-4 and B-5.

- Whenever changes to the source generating the waste stream are reasonably likely to cause the average VOC concentration of the RCRA-regulated waste to increase to a level that is equal to or greater than the applicable VOC concentration limits specified in 20

NMAC 4.1.500/40 CFR 264.1082, a new waste determination will be performed, as specified in 20 NMAC 4.1.500/40 CFR 264.1083(a)(1)(ii).

- The characterization documentation for VOCs will be reviewed by the Unit personnel as part of the characterization process discussed in Section B.2. If process knowledge in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(a)(4) is insufficient, sampling and analysis of the waste will be required, in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(a)(3) [10-1-03].

- RCRA-regulated wastes containing VOCs that are newly generated through treatment will be characterized for VOC content in accordance with 20 NMAC 4.1.600/40 CFR 265.1084(b) [10-1-03] if the waste being treated contains VOCs, and/or the treatment process involves VOCs.

- Routinely-generated RCRA-regulated wastes that are subject to 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03], will be reviewed and updated at least once every 12 months (20 NMAC 4.1.500/40 CFR 264.1082(c)(1) [10-1-03]) to determine whether the Subpart CC requirements continue to apply.

B.7 RECORDS

Once Unit personnel have adequate characterization for a RCRA-regulated waste, the information is typically entered into a waste tracking database. Each package (the smallest discrete waste item) is assigned a unique identification and tracking number before it is picked up and transported to a Unit. Characterization information and analytical data associated with the package is either in paper or electronic format. Unit personnel perform activities that affect a waste package (e.g., movement, repackaging, additional characterization, treatment, or shipment to an off-site TSDF). Information about these activities is added to the paper and/or electronic record for each package. The records are maintained as discussed in Section 9.0 of the General Part B.

REFERENCES

American Society for Testing and Materials, 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," ASTM D4547-91, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.

ASTM, see American Society for Testing and Materials

Cotsworth, 2002, “Hazardous Waste Generated in Laboratories”, memo to RCRA Senior Policy Advisors, EPA Regions I-X, US Environmental Protection Agency, Office of Solid Waste.

DHHS, see U.S. Department of Health and Human Services.

DOE, see U.S. Department of Energy.

EPA, see U.S. Environmental Protection Agency.

New Mexico Environment Department (NMED), 1995, as amended, “Federal Facilities Compliance Order,” Compliance Order between the NMED, the U.S. Department of Energy, and Sandia Corporation.

NMED, see New Mexico Environment Department.

NRC, see U.S. Nuclear Regulatory Commission

SNL/NM, see Sandia National Laboratories/New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2004, “Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Revision 7.0,” Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

U.S. Department of Energy (DOE), 2001, “Radioactive Waste Management Manual,” DOE M 435.1-1, U.S. Department of Energy, Office of Environmental Management, Washington, D.C.

U.S. Department of Health and Human Services (DHHS), 1994, “NIOSH Pocket Guide to Chemical Hazards,” National Institute for Occupational Safety and Health.

U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” *SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds,” EPA 1/540/4-91/001, Office of Research and Development.

U.S. Environmental Protection Agency (EPA), 1992, “Characterizing Heterogeneous Wastes: Methods and Recommendations,” U.S. Environmental Protection Agency, Environmental Systems Monitoring Laboratory, Office of Research and Development, Las Vegas, Nevada.

U.S. Environmental Protection Agency (EPA), 1994, “Waste Analysis at Facilities that Generate Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual,” *OSWER 9938.4-03*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C.

U.S. Environmental Protection Agency (EPA) and U.S. Nuclear Regulatory Commission (NRC), 1997, “Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste”, *Federal Register*, Vol. 62, No. 224, U.S. Government Printing Office, Washington D.C.

This page left intentionally blank.

APPENDIX C

SITE-WIDE INSPECTION PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF FIGURES ..... SW-C-ii
ACRONYMS AND ABBREVIATIONS ..... SW-C-iii
C.1 INSPECTION REQUIREMENTS FOR UNITS SW-C-1
C.1.1 Inspection Records SW-C-1
C.1.2 Remedial Action SW-C-2
C.2 TYPICAL INSPECTION SCHEDULE AND REQUIREMENTS FOR UNITS SW-C-2
C.2.1 Daily SW-C-3
C.2.2 Weekly SW-C-3
C.2.3 Monthly SW-C-3
C.3 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART AA REQUIREMENTS SW-C-4
C.4 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART BB REQUIREMENTS SW-C-4
C.5 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS SW-C-4

LIST OF FIGURES

Figure No.	Title
C-1	Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit, Daily Inspection Form – Example
C-2	Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit, Weekly/Monthly Inspection Form – Example

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
RCRA	Resource Conservation and Recovery Act
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SITE-WIDE INSPECTION PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX (20 NMAC 4.1.900), adopting by reference the Code of Federal Regulations, Title 40, Part 270 including Section 270.14(b)(5) (40 CFR 270.14[b][5]), and 20 NMAC 4.1.500/40 CFR 264.15, "General Inspection Requirements," revised October 1, 2003 [10-1-03], this appendix presents site-wide inspection requirements applicable to the Resource Conservation and Recovery Act (RCRA)-regulated waste management units (Units) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE).

Pursuant to 20 NMAC 4.1.500/40 CFR 264.15(a) [10-1-03], inspection schedules for the Units have been developed to identify equipment malfunctions and deterioration, operator errors, and discharges that might cause or lead to a release of RCRA-regulated waste and pose a threat to human health and the environment. This inspection plan, which presents general inspection schedules, is being submitted as required by 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03]. Unit-specific inspection requirements are provided in Section 4.0 of each Unit-specific module. Together, information in this appendix, in the General Part B, and in each Unit-specific module meets the applicable regulatory requirements.

C.1 INSPECTION REQUIREMENTS FOR UNITS [20 NMAC 4.1.900/40 CFR 270.14(b)(5), and 20 NMAC 4.1.500/40 CFR 264.15, 264.174, and 264.602]

In accordance with the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.15(b)(1), 264.174, and 264.602 [10-1-03], SNL/NM Units are inspected for malfunctions and deterioration, operator errors, and discharges which may be causing, or may lead to, a release of hazardous waste constituents to the environment or a threat to human health. Inspections include monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing, detecting, and responding to environmental or human health hazards caused by RCRA-regulated waste. Containers of RCRA-regulated waste stored at a Unit are also routinely inspected to assess container integrity, closure, labeling, secondary containment, location with respect to incompatible wastes, and waste and container compatibility. Additional detail about specific items and areas is included in each Unit-specific module.

A copy of this appendix, which includes relevant inspection schedules, is maintained at each Unit, together with the Unit-specific inspection plan, unless specified otherwise in Section 4.0 of each Unit-specific module, as required in 20 NMAC 4.1.500/40 CFR 264.15(b)(2) [10-1-03].

C.1.1 Inspection Records [20 NMAC 4.1.500/40 CFR 264.15(d)]

Unit personnel are assigned to conduct inspections and record the information on inspection forms. Figures C-1 and C-2 are representative of the inspection forms completed by personnel inspecting SNL/NM Units. Figures C-1 and C-2 are provided for informational purposes only; the forms are subject to change. Any forms used will be functionally equivalent to the ones

shown as Figures C-1 and C-2. The inspection forms identify the items to be inspected and the potential problems that may occur (20 NMAC 4.1.500/40 CFR 264.15(b)(3) [10-1-03]). Additional detail is included in each Unit-specific inspection plan. The following information is recorded on the inspection forms.

- Name of inspector
- Date and time of inspection
- Notation of observations and results of the inspection
- Date and nature of any repairs or remedial action.

For each Unit, inspection records are maintained for a minimum of three years from the date of inspection. Current calendar year records are maintained at the Unit. Previous calendar year records may be maintained at the Unit, SNL/NM Records Center, or as noted in Section 4.0 of each Unit-specific module.

C.1.2 Remedial Action [20 NMAC 4.1.500/40 CFR 264.15(c)]

For every item requiring inspection, a response indicating the condition of each item must be entered in the appropriate column on the form. If any defects, deterioration, damage, or potential hazards are discovered during an inspection or observed during waste handling activities, Unit personnel begin taking corrective action upon discovery to ensure that the problem does not lead to an environmental or human health hazard. Appropriate action may include evaluation and removal of accumulated liquids from secondary containment, transfer of waste from a defective container to an appropriate container in good condition, or repair or replacement of nonfunctioning equipment and/or systems. If an inspection or observation during waste handling reveals that a nonemergency problem has developed, corrective action including repairs, maintenance, and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs.

Corrective action(s) taken in response to conditions discovered during an inspection or observed during waste handling are noted on the inspection forms. The corrective action(s) taken (along with time, date, and other pertinent information) are recorded in the appropriate section of the inspection form on which the condition and corrective action were first noted or in the first form after the corrective actions are completed. For example, corrective actions in response to conditions observed during waste handling are noted in the form for that day or in the form for the first daily inspection following implementation of the corrective action. Corrective actions in response to conditions discovered during a weekly inspection are noted in the appropriate section of the form for the discovery date or in the form for the first weekly inspection completed following implementation of the corrective action.

C.2 TYPICAL INSPECTION SCHEDULE AND REQUIREMENTS FOR UNITS [20 NMAC 4.1.500/40 CFR 264.15(b)(4), 264.174, and 264.602]

The schedules described in this section are followed for the inspection of the items and areas noted in Section C.1. Inspections may be conducted at any time during the applicable time period (e.g., day, week, month) specified in the inspection schedule.

The U.S. Air Force, which operates Kirtland Air Force Base, may, for security or other reasons, deny access to Sandia/DOE personnel performing periodic Unit inspections. In such cases, Unit personnel will resume inspections as soon as possible after access is granted, and will document the missed inspections and reasons on the next inspection report.

SNL/NM Units are typically inspected according to the schedule provided below. Inspection frequencies have been developed based on the deterioration rates of equipment/systems and likelihood of failure, and the probability of harm to human health or the environment if: 1) the equipment/system fails between inspections; or 2) operator error goes undetected between inspections. Equipment and systems most likely to fail and those whose failure could lead to severe consequences are inspected most frequently.

The inspection frequencies for specific equipment and areas of operation at each Unit are listed in Section 4.0 of each Unit-specific module. Those detailed schedules are consistent with the general schedule described here.

C.2.1 Daily

A daily Unit inspection is conducted during each day that RCRA-regulated wastes are handled at that Unit. Waste handling includes when RCRA-regulated waste is received at, moved or opened within, treated at, or removed from a WMA. An example of a daily inspection form (Figure C-1) lists the items typically addressed. A detailed list of items is included in Section 4.0 of each Unit-specific module.

C.2.2 Weekly

A weekly Unit inspection is conducted at least once during each week that RCRA-regulated waste is stored at that Unit. The example of a weekly inspection form (Figure C-2) lists the items typically addressed (included in Item 10 on the form). A detailed list of items is included in Section 4.0 of each Unit-specific module. For the purposes of inspections, weekly is defined as Sunday through the following Saturday.

C.2.3 Monthly

Safety and emergency equipment, security devices, and Unit operating and structural equipment are inspected on a monthly schedule at each active and inactive Unit. Monthly inspections are conducted at WMAs not currently in use for management of RCRA-regulated wastes. Items 7, 8, and 9 on the monthly inspection form (Figure C-2) identify the items to be inspected at active and inactive WMAs. A detailed list of items is included in Section 4.0 of each Unit-specific module.

C.3 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART AA REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart AA]

Sandia/DOE do not manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight using process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. Therefore, Sandia/DOE are exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA [10-1-03].

C.4 INSPECTION and MONITORING FOR UNITS SUBJECT TO SUBPART BB REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart BB]

Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03]. Equipment used in such service will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 264.1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 1050(f) [10-1-03].

C.5 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS [20 NMAC 4.1.500/40 CFR 264, Subpart CC]

Containers are visually inspected either at the time of pickup from a generator site, as they are unloaded from a transport vehicle at a Unit, or within 24 hours of acceptance at a Unit. The visual inspection assures that there are no cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position, in accordance with Container Level 1 air emission standards in 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03]. The inspection requirements for these containers are specified in 20 NMAC 4.1.500/40 CFR 264.1086(c)(4) [10-1-03]. At each Unit where such containers are handled and/or stored, personnel take the following steps:

- Check containers and the condition and placement of their covers during inspections of handled and stored containers.

- Take remedial actions if needed. Unit personnel begin taking corrective action upon discovery of a defect in the container, cover, or closure device. Repairs will be completed as soon as possible. If the repairs are not completed in 5 calendar days, the waste will be transferred to a container in good condition.

- Record container conditions and remedial actions taken in the applicable inspection reports: daily reports for containers that are handled, or weekly inspection reports for stored containers.

Figure C-1
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Daily Inspection Form – Example

1. Area(s) Inspected (i.e., Loading/Unloading Area, Treatment Area) _____
2. Structure(s) Inspected (i.e., HWMF, TTF, RMWMF/CWMF, AHCF, MSB Bunker #)
3. Inspection Date _____
4. Inspection Time _____ am/pm
5. Inspector Name (print) _____

5. Loading/ Unloading Area(s)[a]	Inspection Criteria	Yes	No	NA ( ) load	Corrective Action Issue	Corrective Action Taken and Closure Date
Loading/Unloading Area[c]	Good condition, safe working surface, no spills					
Waste Handling Equipment[c]	Good condition, operational					
Container(s) Loaded/ Unloaded	Good condition					

6. Treatment Area(s)[b,c]	Inspection Criteria	Yes	No	NA ( ) treat	Corrective Action Issue	Corrective Action Taken and Closure Date
Treatment Area	Good condition					
Treatment Unit and/or Equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or corrosion), maintains established parameters					
Monitoring Equipment	Good condition, operational					

7. Comments and Notes Comment on deficiencies by referencing section and question.

Inspector Signature: _____

Immediately file the completed inspection form in the Unit operating record.

[a] Required on days loading/unloading operations involving RCRA-regulated wastes are conducted.
[b] Required on days treatment operations involving RCRA-regulated wastes are conducted.
[c] Required monthly with facility operating and structural equipment if RCRA-regulated wastes are not managed at Unit during the month.

Figure C-2
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Weekly/Monthly Inspection Form – Example

1. Structure(s) Inspected (i.e., HWMF, TTF, RMWMF/CWMF, AHCF, MSB Bunker #) _____
2. Inspection Date _____
3. Inspection Time _____ am/pm
4. Inspector Name (print) _____
5. Monthly
   Weekly

6. Status[a]	Inspection Criteria	Yes	No
RCRA-regulated waste currently stored at Unit	Storage status (Yes–waste present, No–waste not present)		
RCRA-regulated waste currently undergoing treatment at Unit	Treatment status (Yes–waste present, No–waste not present)		

7. Safety & Emergency Equipment[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Spill Control Equipment	Present, good condition					
Fire Extinguisher(s)	Present, good condition, charged					
Decontamination Equipment	Present, good condition					
External Communication System	Present, operational					
Internal Communication and Alarm System	Present, operational					
Fire Suppression System (e.g., Water, Dry Chemical)	Present					

8. Security Devices[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Facility Fence	Good condition					
Gate(s) and Door(s)	Operational					
Warning Sign(s)	Present, legible					
Lock(s) and Tamper Indication Device(s)	Present, good condition					

Refer to footnotes at end of form.

Figure C-2 (Continued)
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Weekly/Monthly Inspection Form – Example

9. Facility Operating & Structural Equipment[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Floor, Walls, Ceiling	Good condition					
Lighting	Operational					

10. Treatment Area(s)[b]	Inspection Criteria	Yes	No	NA ( ) weekly	Corrective Action Issue	Corrective Action Taken and Closure Date
Treatment Area (i.e., floor, walls) Condition	Good condition					
Fume Hood	Good condition					
Treatment Unit and/or Equipment (e.g. hand tools)	Good condition (i.e., no releases or corrosion), maintains established parameters					
Monitoring Equipment	Good condition, operational					

11. Containers[c]	Inspection Criteria	Yes	No	NA ( ) monthly	Corrective Action Issue	Corrective Action Taken and Closure Date
Container Placement	Correct aisle space, correct stacking					
Container Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)					
Container Sealing	Correct lid/cover placement (i.e., closed)					
Container Labeling	Correct information, correct location, legible					
Storage Area (i.e., floor, walls) Condition	Good condition					
Secondary Containment (liquid waste)	Adequate volume, free of liquids, good condition					
Storage Conditions	Waste compatibility, container compatibility					

Refer to footnotes at end of form.

Figure C-2 (Concluded)
Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Weekly/Monthly Inspection Form – Example

12. Comments and Notes Comment on deficiencies by referencing section and question.

Immediately file the completed inspection form in the facility operating record.

[a] Weekly inspection criteria are not applicable if RCRA-regulated waste is not stored or treated at structure. Monthly inspection criteria are still applicable.
[b] Required during a monthly inspection. Criteria are not applicable during weekly (only) inspection.
[c] Required during a weekly inspection. Criteria are not applicable during monthly (only) inspection.

Inspector Signature: _____

Inspector Name _____

APPENDIX D

SITE-WIDE PERSONNEL TRAINING PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-D-ii
LIST OF FIGURES ..... SW-D-iii
ACRONYMS AND ABBREVIATIONS ..... SW-D-iv
D.1 RCRA-REGULATED WASTE MANAGEMENT RESPONSIBILITIES SW-D-1
D.2 JOB TITLE/JOB DESCRIPTION SW-D-1
D.3 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES SW-D-2
D.4 TRAINING DIRECTOR SW-D-2
D.5 EMERGENCY TRAINING SW-D-7
D.6 IMPLEMENTATION OF TRAINING PROGRAMS SW-D-7

LIST OF TABLES

Table No.	Title
D-1	Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit Training Content
D-2	Training for Each Job Title

LIST OF FIGURES

Figure No.	Title
D-1	Job Title, Description, And Qualifications RCRA Training Director
D-2	Job Title, Description, And Qualifications RCRA Project Leader
D-3	Job Title, Description, And Qualifications RCRA Emergency Coordinator
D-4	Job Title, Description, And Qualifications RCRA Chemist
D-5	Job Title, Description, And Qualifications RCRA Field Technician
D-6	Job Title, Description, And Qualifications RCRA Special Project Staff
D-7	Job Title, Description, And Qualifications RCRA Inspector
D-8	Job Title, Description, And Qualifications RCRA Transportation Manager
D-9	Job Title, Description, And Qualifications RCRA Unit Operations Support Staff

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
RCRA	Resource Conservation and Recovery Act
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management Unit

SITE-WIDE PERSONNEL TRAINING PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This appendix describes site-wide personnel training requirements for Sandia National Laboratories/New Mexico (SNL/NM) Resource Conservation and Recovery Act (RCRA)-regulated waste management unit (Unit) workers. Unit-specific training requirements, if any, for SNL/NM Unit workers are provided in Section 5.0 of each Unit-specific module. Together, information in the General Part B, in this appendix and in each Unit-specific module meets the applicable regulatory requirements.

Training requirements for Unit personnel are specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V, (20 NMAC 4.1.500), adopting by reference the Code of Federal Regulations, Title 40, Part 264 including Section 264.16 (40 CFR 264.16), revised October 1, 2003 [10-1-03], "Personnel Training." The primary objective of the training program is to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste, in accordance with 20 NMAC 4.1.500/40 CFR 264 [10-1-03]. This training program applies to all employees of the U.S. Department of Energy, Sandia Corporation, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at SNL/NM Units included in this General Part B. The degree of training varies with the job duties.

D.1 RCRA-REGULATED WASTE MANAGEMENT RESPONSIBILITIES

This program provides employees with training relevant to their positions. Unit personnel are given, at a minimum, a basic understanding of the RCRA regulatory requirements for waste management, emergency procedures, and operating procedures. Some employees receive additional classroom and on-the-job training designed for specific duties. Employees who have not received training or are unable to provide relevant and appropriate training documentation receive the required training within six months of assignment to RCRA-regulated waste management activities and prior to managing RCRA-regulated waste without supervision.

D.2 JOB TITLE/JOB DESCRIPTION [20 NMAC 4.1.900/40 CFR 270.14(b)(12) and 20 NMAC 4.1.500/40 CFR 264.16(d)(1), (2) and (3)

Job titles and descriptions are provided in Figures D-1 through D-9. The job descriptions include requisite skills, education, and/or other qualifications as well as RCRA-regulated waste management job duties. The required training for each job title is found in Table D-2.

A file of all Unit personnel, including their job titles and job descriptions, is maintained at each Unit unless specified differently in Section 5.0 of each Unit-specific module. For each job title, the file contains information on the minimum activities performed by employees, requisite qualifications, and training records.

D.3 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES [20 NMAC 4.1.900/40 CFR 270.14(b)(12) and 20 NMAC 4.1.500/40 CFR 264.16]

This program provides employees with training relevant to their positions and specific to the safe performance of assigned tasks. For example, personnel who are directly involved in handling RCRA-regulated wastes are informed of the potential hazards associated with waste management activities, procedures for safe handling of wastes, and emergency procedures. Individuals in supervisory or decision-making positions receive a comprehensive overview of all aspects of RCRA-regulated waste management. Personnel with specific or short-term assignments, such as visitors or temporary contractors, may only receive training on the contingency plan and emergency response procedures. Personnel who perform hands-on management of RCRA-regulated wastes receive training commensurate with their assigned duties.

The training program includes a combination of classroom instruction, reviews of written documents, and on-the-job training exercises. Training information is provided according to training topics (e.g., Contingency Plan), frequency (e.g., initial or refresher), and methods (e.g., classroom instruction, procedure review, on-the-job exercises). Training course content includes, at a minimum, the topics shown in Table D-1. As regulatory compliance requirements change, training courses are evaluated and modified, as necessary. The content is reviewed annually. Some training is standardized and given to all employees. Job-specific training appropriate to job function is given to Unit employees. Training is provided at the frequencies shown on Table D-1. Training that may be applicable to each job title is provided in Table D-2.

D.4 TRAINING DIRECTOR [20 NMAC 4.1.500/40 CFR 264.16(a)(2)]

The Unit-specific Department Manager or designee will function as the Training Director. The Manager maintains responsibility for ensuring that all Unit-specific required training is obtained. The Manager/Training Director is knowledgeable about the applicable hazardous waste management regulations and specific RCRA-regulated waste management operations employed at a Unit. The Manager/Training Director determines the exact content and duration of training required for individual employees.

The Manager/Training Director may perform or delegate training to qualified trainers. Trainers are qualified on the basis of attainment of one or more of the following, as applicable:

- Certification in the subject matter addressed by the training;
- Demonstration of knowledge and competence in the training subject; and/or
- Previous on-the-job and/or classroom training in the topics covered.

Table D-1
Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Unit
Training Content

RCRA Regulation Training

Duration: Variable (Typically 4 hours or more)
Frequency: Initial/Periodic Refresher (Typically annual)
Method: Classroom instruction, on-the-job training, and/or document review

Minimum content may include (as applicable to the specific Unit to which an employee is assigned):

- Identification of RCRA-regulated waste
- Treatment, storage, and disposal facility requirements
- Generator and transporter requirements

RCRA Contingency Plan and Emergency Procedures

Duration: Variable (Typically 1-4 hours)
Frequency: Initial/Annual Refresher
Method: Classroom instruction, document review, and/or on-the-job exercises

Minimum content must include (as applicable to the specific RCRA-regulated waste management unit to which an employee is assigned):

- Emergency notification procedures
- Response to emergencies
- Evacuation route and procedure
- Emergency equipment and personal protective equipment
- Emergency Coordinator responsibilities
- Post-emergency actions
- Contingency Plan
- Shutdown procedures (if any)

Table D-1 (Continued)
Sandia National Laboratories/New Mexico
RCRA-Regulated Waste Management Unit
Training Content

Technical Work Documents and Refresher

Duration: Variable (Typically 1 hour or more)
Frequency: Initial/Periodic Refresher
Method: Document review, on-the-job training

Minimum Content: This training is function-specific and may be divided into sections or modules. Each employee must participate in the sections that apply to his or her specific job function. Sections may include, but are not limited to:

- Waste Analysis Plan
- Unit-specific safety practices
- Unit-specific operational procedures (e.g., loading and unloading)
- Unit security, entry, and control
- Operation, maintenance, and inspection of equipment
- Prevention of the ignition/reaction of ignitable/reactive wastes
- Permit conditions
- Emergency response
- Unit tour

Table D-1 (Concluded)
Sandia National Laboratories/New Mexico
RCRA-Regulated Waste Management Unit
Training Content

Hazardous Waste Operations and Emergency Response

Duration: Variable (Typically 24 hours or more with an 8-hour refresher)
Frequency: Initial/Refresher (Typically annual)
Method: Classroom instruction, hands-on exercises

Minimum Content:

- Hazardous waste management regulations
- Sources of information
- Compatibility of RCRA-regulated wastes
- Personnel protection
- Principles of safety
- Emergency procedures

Table D-2
Training for Each Job Title

Required Training	Job Titles								
	Training Director	RCRA Project Leader	Emergency Coordinator	Chemist	Field Technician (Waste Handler)	Special Projects Staff	Inspector	Transportation Manager	Unit Operations Support Staff
Resource Conservation and Recovery Act (RCRA) Regulations (Applicable Modules)	X	X	X	X	X	X	X	X	
RCRA Contingency Plan and Emergency Procedures	X	X	X	X	X	X	X	X	X
Technical Work Documents (Applicable Modules)	X	X		X	X	X	X		
Hazardous Waste Operations and Emergency Response (24- or 40-hour course)	X	X	X	X	X	X	X	X	
Hazardous Waste Operations and Emergency Response (8-hour course)	X	X	X	X	X	X	X	X	

D.5 EMERGENCY TRAINING [20 NMAC 4.1.500/40 CFR 264.16(a)(3) and (c)]

Appendix E of this permit renewal request/application provides a more detailed discussion of emergency procedures, personnel, and equipment.

Unit employees participate in Unit-specific emergency response training to assure effective emergency response. Emergency response training consists of classroom instruction, document reviews, and/or on-the-job exercises. The content is reviewed annually and revised as needed to incorporate changes in regulatory compliance requirements. Topics covered include at a minimum:

- Emergency notification procedures
- Response to emergencies, including fires, explosions, and releases of RCRA-regulated wastes
- Procedures for using, inspecting, maintaining, and replacing emergency equipment and personal protective equipment
- Procedures for the shutdown of operations (if any)
- Procedures for evacuation (i.e., communications/alarms)
- Responsibilities of the Emergency Coordinator
- Post-emergency reports and actions
- Contingency Plan.

D.6 IMPLEMENTATION OF TRAINING PROGRAMS [20 NMAC 4.1.500/40 CFR 264.16(b) and (c)]

The training program is implemented to assure that Unit personnel receive appropriate training in a timely manner. Employees who require training receive the specified training within six months of their date of hire or their transfer to a new position. Personnel do not work unsupervised in RCRA-regulated waste management areas until they successfully complete the indicated training requirements.

Training records are kept to document the type and amount of training received for each Unit employee who manages RCRA-regulated wastes. Contents of these records include the following, at a minimum:

- Job title for each position related to RCRA-regulated waste management
- The name of the employee assigned to each job title

- Written job description
- Written training requirements for each job title
- Records that document training received, such as attendance or signature lists, certificates, memoranda of training, or reports from computerized databases of training completion status.

Training records for current and former Unit employees are kept at the Unit to which an employee is/was assigned, unless specified differently in Section 5.0 of each Unit-specific module. Training records for current Unit employees are kept until closure of the Unit. Training records for any former Unit employee are kept for a minimum of three years from the date the employee last worked at the Unit.

Job Title: RCRA Training Director

Job Description:
The RCRA Training Director ensures that all appropriate personnel meet the site-wide personnel training requirements for SNL/NM RCRA-regulated waste management Unit workers, including the Unit-specific RCRA training requirements. RCRA Training Director duties may include, but are not limited to:

- Identifying and/or coordinating training required by RCRA regulations and SNL/NM RCRA-regulated waste management worker training requirements.
- Ensuring maintenance of training records required by RCRA regulations and demonstrating compliance with SNL/NM RCRA-regulated waste management worker training requirements for all personnel.
- Informing personnel when specific training is required.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for the RCRA Training Director is:

- High school diploma or equivalent, or bachelor's degree from an accredited post-secondary institution; or
- Three years experience with RCRA waste management regulations

Training:
Initial and refresher training will be as required in Table D-2

FIGURE D-1
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
RCRA TRAINING DIRECTOR

Job Title: RCRA Project Leader

Job Description:
A RCRA Project Leader oversees, supervises, and coordinates collection, storage, and shipment of RCRA-regulated waste at the Sandia National Laboratories/New Mexico. Duties may include, but are not limited to:

- Ensuring operation of the Unit in compliance with applicable RCRA regulations;
- Identifying and coordinating training required by RCRA regulations;
- Determining training and reading requirements specific to positions, tasks or Unit activities;
- Coordinating activities related to management of RCRA-regulated waste at the Unit;
- Ensuring maintenance of records required by RCRA regulations, such as training records, inspection records, waste analysis records, and a RCRA Contingency Plan;
- Ensuring maintenance of additional records required for the Unit operating record;
- Preparing, reviewing, submitting documents on waste management activities;
- Ensuring compliance with RCRA regulations for shipments of RCRA-regulated wastes; and
- Coordinating activities pertaining to audits of RCRA-regulated waste management.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a RCRA Project Leader is:

- High school diploma or equivalent, or bachelor's degree from an accredited post-secondary institution; or
- Three years experience in managing RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-2
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
RCRA PROJECT LEADER

Job Title: Emergency Coordinator

Job Description:
An Emergency Coordinator evaluates, coordinates, and implements emergency actions in accordance with the RCRA Contingency Plan during an emergency (as defined in the Contingency Plan). As defined in the RCRA Contingency Plan, Emergency Coordinator duties during and after an emergency may include, but are not limited to:

- Identifying the character, exact source, amount, and extent of released RCRA-regulated waste by observation, records reviews, or chemical analysis;
- Assessing possible resulting hazards to human health or the environment considering both direct and indirect effects;
- Taking all reasonable measures necessary to ensure fires, explosions, and releases do not occur, recur, or spread to other RCRA-regulated waste at the Unit including stopping processes and operations, collecting and containing released waste, and removing or isolating containers;
- Monitoring for leaks, pressure buildup, gas generation, and ruptures in valves, pipes, or other equipment if the facility stops operations;
- Providing for properly treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material;
- Ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
- Ensuring that all equipment listed in the Contingency Plan is cleaned and fit for its intended use before resuming operations.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for an Emergency Coordinator is:

- High school diploma or equivalent; or
- Three years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-3
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
EMERGENCY COORDINATOR

Job Title: Chemist

Job Description:
A Chemist conducts supporting characterization of RCRA-regulated waste managed at Sandia National Laboratories/New Mexico. Duties may include, but are not limited to:

- Evaluating data provided by the initial generator of a solid waste, and obtaining additional information as needed for hazardous waste determination;
- Determining whether solid wastes are hazardous wastes as defined in 20 NMAC 4.1.200/40 CFR 261;
- Assigning appropriate hazardous waste codes to RCRA-regulated wastes;
- Identifying treatment options and treatment standards for RCRA-regulated wastes to be treated on site;
- Evaluating data and/or information for treated wastes and residues to characterize the residues, assign appropriate hazardous waste codes, and determine land disposal restrictions; and
- Segregating RCRA-regulated waste.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a Chemist is:

- High school diploma or equivalent; or
- Two years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-4
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
CHEMIST

Job Title: Field Technician (Waste Handler)

Job Description:
A Waste Handler conducts RCRA-regulated waste handling, segregating, and storing operations at the Sandia National Laboratories/New Mexico. Waste Handler duties may include, but are not limited to:

- Transporting and handling RCRA-regulated waste;
- Conducting daily inspections of waste management Units where RCRA-regulated waste loading, unloading, or treatment operations occur;
- Performing basic maintenance and housekeeping activities;
- Segregating RCRA-regulated waste
- Sorting, packaging, marking, labeling, storing, treating, and segregating RCRA-regulated waste; and
- Compiling and entering into a database specific operating record information.

Skill, Education, and Other Qualifications:
At a minimum, the qualification for a Waste Handler is:

- High school diploma or equivalent; or
- Two years experience in handling RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-5
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
FIELD TECHNICIAN

Job Title: Special Projects Staff

Job Description:
A Special Projects Staff member performs duties associated with non-routine and special projects at Sandia National Laboratories/New Mexico. Special Projects Staff member duties may include, but are not limited to:

- Handling RCRA-regulated waste during a special project;
- Performing special project related maintenance and housekeeping activities;
- Operating RCRA-regulated waste treatment equipment associated with a special project;
- Storing, labeling, and segregating RCRA-regulated waste associated with a special project; and
- Identifying and scheduling special project activities involving RCRA-regulated waste;
- Monitoring RCRA-regulated waste special project activities for safety and procedural compliance; and
- Compiling special project information for the facility operating record.

Required Skill, Education, or Other Qualifications:
At a minimum, the qualification for a Special Projects Staff member is:

- High school diploma or equivalent; or
- Two years experience in handling RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-6
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
SPECIAL PROJECT STAFF

Job Title: Inspector

Job Description:
An Inspector conducts inspections of RCRA-regulated waste and RCRA-regulated waste management Units at the Sandia National Laboratories/New Mexico. Inspector duties may include, but are not limited to:

- Inspecting at least daily areas subject to spills of RCRA-regulated wastes when these areas are in use;
- Inspecting at least weekly containers holding RCRA-regulated waste, container equipment, and secondary containment;
- Inspecting at least monthly emergency equipment, security devices, and structural equipment at RCRA-regulated waste management Units; and
- Recording inspection date, time, name, observations, and repairs in an inspection log (in the form of an inspection checklist).

Skill, Education, and Other Qualifications:
At a minimum, the qualification for an Inspector is:

- High school diploma or equivalent; or
- Two years experience working with RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-7
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
INSPECTOR

Job Title: Transportation Manager

Job Description:
A Transportation Manager coordinates the shipment of RCRA-regulated waste from the Sandia National Laboratories/New Mexico. Transportation Manager duties may include, but are not limited to:

- Preparing and compiling documentation and paperwork (e.g., manifests and notices) for off-site shipments of RCRA-regulated waste;
- Ensuring proper packaging, labeling, marking, and placarding are in place for off-site shipments of RCRA-regulated waste; and
- Coordinating the loading of RCRA-regulated waste for off-site shipment.

Required Skill, Education, or Other Qualifications:
At a minimum, the qualification for a Transportation Manager is:

- High school diploma or equivalent; or
- Two years experience coordinating shipments of RCRA-regulated waste.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-8
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
TRANSPORTATION MANAGER

Job Title: Unit Operations Support Staff

Job Description:
A Unit Operations Support Staff member has unescorted access to the facility but performs no activities that require contact with RCRA-regulated waste or waste containers. Unit Operations Support Staff may include, but are not limited to:

- Administrative personnel;
- Information systems (database) personnel;
- Radiation support personnel; and
- Generator interface personnel.

Skill, Education, and Other Qualifications:
The Training Supervisor determines the requisite level of experience for each position.

Training:
Initial and refresher training will be as required in Table D-2.

FIGURE D-9
JOB TITLE, DESCRIPTION, and QUALIFICATIONS
UNIT OPERATIONS SUPPORT STAFF

This page intentionally left blank.

APPENDIX E

SITE-WIDE CONTINGENCY PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-E-ii
LIST OF FIGURES ..... SW-E-iii
ACRONYMS AND ABBREVIATIONS ..... SW-E-iv
DEFINITIONS ..... SW-E-v
E.1 SNL/NM SITE DESCRIPTION SW-E-1
E.1.1 Unit Descriptions SW-E-1
E.1.2 Waste Description SW-E-1
E.1.3 Operating Schedule SW-E-3
E.2 CONTINGENCY PLAN DISTRIBUTION AND AMENDMENTS SW-E-3
E.3 EMERGENCY RESPONSE RESOURCES SW-E-4
E.3.1 Emergency Coordinator and Responsibilities SW-E-4
E.3.2 Emergency Response Groups SW-E-5
E.3.3 Emergency Chain of Command SW-E-5
E.3.4 Support Agreements and Coordination with Outside Agencies SW-E-5
E.4 EMERGENCY EQUIPMENT SW-E-6
E.5 CONTINGENCY PLAN IMPLEMENTATION SW-E-6
E.5.1 Emergencies SW-E-7
E.5.1.1 Fire SW-E-8
E.5.1.2 Explosion SW-E-10
E.5.1.3 Uncontrolled Release SW-E-11
E.5.2 Evacuation SW-E-12
E.5.3 Coordination with Off-Site Parties and Emergency Notification SW-E-13
E.6 POST-EMERGENCY ACTIONS SW-E-13
E.7 EMERGENCY RESPONSE RECORDS AND REPORTS SW-E-14

LIST OF TABLES

Table No.	Title
E-1	RCRA-Regulated Waste Management Units Included in Contingency Plan
E-2	Agreements and Memoranda of Understanding
E-3	Sandia National Laboratories/New Mexico (SNL/NM) Facility Emergency Equipment
E-4	Emergency Response System Notification, Sandia National Laboratories/New Mexico

LIST OF FIGURES

Figure No.	Title
E-1	Sandia National Laboratories/New Mexico, Technical Areas (TAs) Resource Conservation and Recovery Act-Regulated Waste Management Units

ACRONYMS AND ABBREVIATIONS

40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
DOE	U.S. Department of Energy
EC	Emergency Coordinator
EOC	Emergency Operations Center
ERO	Emergency Response Organization
IC	Incident Commander
ICS	Incident Command System
KAFB	Kirtland Air Force Base
NMED	New Mexico Environment Department
OKSO	Office of Kirtland Site Operations
RCRA	Resource Conservation and Recovery Act
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
Unit	RCRA-regulated waste management unit

DEFINITIONS

Emergency: Any imminent or existing fire or explosion, or unplanned sudden or nonsudden release of Resource Conservation and Recovery Act (RCRA)-regulated hazardous waste or hazardous waste constituents to air, soil, or surface water that threatens human health or the environment. Examples of emergencies include but are not limited to:

- A release of RCRA-regulated waste within the Unit that cannot be contained with secondary containment or application of absorbents.
- An imminent or existing fire or explosion involving RCRA-regulated waste.
- A structure fire, grass fire, or forest fire that threatens to ignite RCRA-regulated waste.

Facility: A facility is defined by 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], as all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of RCRA-regulated waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them). The U.S. Environmental Protection Agency Identification Number assigned to Sandia National Laboratories/New Mexico is NM5890110518.

Hazardous Waste: A waste that meets the definition of RCRA solid waste, is not exempt from regulation, and exhibits one or more of the characteristics described in 20 NMAC 4.1.200/40 CFR 261, Subpart C [10-1-03], or is listed in 20 NMAC 4.1.200/40 CFR Part 261, Subpart D [10-1-03].

Mixed Waste: Waste that contains both hazardous waste and radioactive materials (including source, special nuclear, or by-product material) subject to the Atomic Energy Act of 1954 *(42 United States Code 2011 et seq.)*.

Radioactive Waste: Solid, liquid, or gaseous waste that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended.

RCRA-Regulated Waste: For the purposes of this site-wide Contingency Plan and the Unit-specific Contingency Plans, a waste that meets the definition of either hazardous waste or mixed waste.

RCRA-Regulated Waste Management Unit (Unit): A specific operational area used for the treatment and/or storage of RCRA-regulated waste.

This page intentionally left blank.

SITE-WIDE CONTINGENCY PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

This appendix presents site-wide contingency measures applicable to all Resource Conservation and Recovery Act (RCRA)–regulated waste management units (Unit) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE). Unit-specific Contingency Plan information is provided in Section 6.0 of each Unit-specific module. Together, information in the General Part B, in this appendix, and in each Unit-specific module meets the applicable regulatory requirements.

This Contingency Plan is intended to meet the requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V (20 NMAC 4.1.500), adopting by reference the Code of Federal Regulations, Title 40, Part 264 (40 CFR 264), Subpart D, revised October 1, 2003 [10-1-03], "Contingency Plan and Emergency Procedures," and 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03], for hazardous waste treatment, storage, or disposal facilities.

The provisions of this Contingency Plan will be carried out immediately to minimize hazards whenever there is an emergency, as required by 20 NMAC 4.1.500/40 CFR 264.51(b) [10-1-03].

E.1 SNL/NM SITE DESCRIPTION

SNL/NM is a multidisciplinary laboratory engaged in research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly owned subsidiary of Lockheed Martin, for the DOE, with work also performed for others. SNL/NM falls under North American Industry Classification System Numbers 92811 (National Security) and 54171 (Research and Development in the Physical, Engineering, and Life Sciences).

SNL/NM is located on Kirtland Air Force Base (KAFB) immediately southeast of the Albuquerque city limits in Bernalillo County, New Mexico. SNL/NM occupies an area of approximately 2,842 acres (1,150 hectares) within the 80-square-mile KAFB. SNL/NM consists of five Technical Areas, I through V, and remote test areas situated in the eastern half of KAFB (Figure E-1).

E.1.1 Unit Descriptions

The Units subject to 20 NMAC 4.1.500/40 CFR 264, Subpart D [10-1-03] and this Contingency Plan are listed in Table E-1. Additional detail about each Unit is provided in Section 6.0 of each Unit-specific module.

E.1.2 Waste Description

RCRA-regulated wastes at SNL/NM are generated primarily from laboratory research activities, process operations, and environmental restoration activities. Typical laboratory research waste includes bottles of excess or residual chemical mixtures and solutions, and solid laboratory items

Table E-1
RCRA – Regulated Waste Management Units Included in Contingency Plan

Name	Acronym	Location, size	Types of operations	Operating hours	Staff
Hazardous Waste Management Facility	HWMF	South of TA-I, north of entrance to TA-II. Includes Buildings 958, 959. 1.35 acres	Storage, Repackaging	M-F 8:00 am 4:30 pm	Staffed during operating hours
Thermal Treatment Facility	TTF	Northern part of TA-III, south of Building 6715. 196 square feet	Treatment	M-F 7:00 am 5:00 pm	Staffed only during operations at Unit
Radioactive and Mixed Waste Management Facility/ Consolidated Waste Management Facility[a]	RMWMF/ CWMF	Southeast corner of TA-III. Includes Buildings 6920, 6921, 6925, and 6926. 3.11 acres	Storage, Treatment, Repackaging[a]	M-Th 7:00 am – 5:30 pm	Staffed during operating hours
Auxiliary Hot Cell Facility	AHCF	TA-V, Building 6597. 5578 square feet	Storage, Treatment, Repackaging	M-F 8:00 am – 4:30 pm	Staffed during operating hours
Manzano Storage Bunkers	MSB	In Manzano Area on KAFB. 0.4 acres occupied by 5 bunkers (approximately 1600 to 2100 square feet in each bunker)	Storage	M-Th 7:00 am – 5:30 pm	Staffed only during operations at Unit
Corrective Action Management Unit	CAMU	Southeast corner of TA-III. Includes containment cell located due north of RMWMF/CWMF.	Post-closure monitoring of containment cell.		Staffed only during monitoring operations at Unit.
Chemical Waste Landfill	CWL	Southeast corner of TA-III. Includes landfill located due east of RMWMF/CWMF.	Landfill undergoing closure.		Staffed only during closure and monitoring operations at Unit.

[a] Sandia/DOE will physically modify the existing RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. RWMWF RCRA-regulated waste management operations will continue during the modification period. General CWMF operations will continue RMWMF operations (storage, repackaging, and treatment of RCRA-regulated wastes).

such as rags, batteries, and equipment. Typical process waste includes larger volumes (5- to 55-gallon containers) of solvents, oils, and corrosive solutions. Typical environmental restoration activity waste includes contaminated soil cuttings, debris, personal protective equipment, and decontamination fluids.

Because Sandia/DOE research and other activities are subject to change, waste streams and volumes stored at SNL/NM Units vary. The general types of wastes and capacities of each Unit are summarized in Section 6.0 of each module. The detailed description, location, and quantity of the RCRA-regulated wastes managed are identified in the Operating Record maintained for each Unit.

E.1.3 Operating Schedule

The operating schedules of the RCRA-regulated Units are summarized in Table E-1. Sandia/DOE security personnel check each Unit periodically during non-operating hours. If an emergency is discovered during these inspections, the SNL/NM Emergency Operations Center (EOC) and the Unit Emergency Coordinator (EC) (Section E.3.1) will be notified immediately.

E.2 CONTINGENCY PLAN DISTRIBUTION AND AMENDMENTS [20 NMAC 4.1.500/40 CFR 264.53-54]

Copies of the current site-wide Contingency Plan and the applicable Unit-specific information (Section 6.0 of each Unit-specific module) are maintained at the following locations: each Unit, the SNL/NM EOC, and SNL/NM Records Center. Sandia/DOE also provide copies of the Plan and any amendments and updates to the KAFB Fire Department and the New Mexico Environment Department (NMED) for their use.

This site-wide Contingency Plan and the Unit-specific information will be reviewed periodically by the EC(s) and Sandia emergency response organization (ERO) personnel. The plan(s) will be amended, if necessary, whenever one or more of the following occur:

- Applicable regulations or RCRA permit conditions are revised;
- There is a significant change in facility or Unit design, construction, maintenance, operation, or other circumstance that increases the potential for emergencies or changes the response necessary in an emergency;
- The list of designated emergency coordinators changes;
- The list of required emergency equipment changes significantly; or
- Actual implementation of the plan during an emergency demonstrates inadequacies.

E.3 EMERGENCY RESPONSE RESOURCES [20 NMAC 4.1.500/40 CFR 264.52(c) and 264.53]

Resources are available at each Unit, at SNL/NM, within KAFB, and in Albuquerque as described in this section.

E.3.1 Emergency Coordinator and Responsibilities [20 NMAC 4.1.500/40 CFR 264.52(d), 264.55, and 264.56(a)–(h)]

The Unit-specific EC has thorough familiarity with this Contingency Plan and the applicable Unit-specific information, Unit layout, operations, the location of records, the locations and characteristics of the RCRA-regulated waste managed at the Unit(s), and the emergency equipment and supplies. The EC has the authority through the Sandia department manager to commit the necessary Unit resources (including personnel, materials, and funds) to respond to an emergency at SNL/NM.

During emergencies at each Unit, or until the SNL/NM emergency response Incident Commander (IC) arrives (E.3.3), the EC has three primary responsibilities:

1. **Assess the Situation.** By observing the scene, interviewing personnel, and/or reviewing records, the EC must gather information relevant to the response, such as the type of event, quantity and type of released material, and actual or potential hazards to human health or the environment.

2. **Protect Personnel.** The EC should take any reasonable measures to ensure the safety of personnel, such as activating the fire alarm, accounting for Unit personnel, attending to injuries, or coordinating the evacuation of Unit personnel, if necessary. If evacuation is indicated for other personnel, the IC must be informed.

3. **Contain or Mitigate the Hazards.** The EC should take reasonable measures to ensure that fires, explosions, or releases do not occur, recur, or spread.

After emergencies, the EC must ensure that the facility and equipment are cleaned, waste is properly handled and disposed, the Unit is safe to resume operation, and all information necessary for notifications and reports is provided to Sandia/DOE personnel, as outlined in Sections E.6 and E.7.

In the event the EC is not on site or immediately available during an emergency, an alternate EC is contacted. The names, addresses, and phone numbers of the primary and alternate ECs for each SNL/NM Unit are included in each Unit-specific module. A Unit-specific EC or alternate EC is on site or immediately available during the operating hours of each Unit. ECs are also available during non-routine RCRA-regulated waste management operations that may be conducted outside normal operating hours.

E.3.2 Emergency Response Groups

The SNL/NM ERO consists of two response groups that respond to an emergency situation: (1) a field response group led by an IC under the Incident Command System (ICS) and (2) an EOC cadre. The ICS also includes Sandia/DOE Security, the KAFB Fire Department, and Sandia/DOE personnel with relevant technical skills. An IC is on site at SNL/NM at all times (24 hours per day, 7 days per week). Sandia/DOE security and the KAFB Fire Department personnel are also available at all times. Sandia/DOE technical personnel are available on site at SNL/NM from 8:00 am – 4:30 pm Monday through Friday and are on call the rest of the time. The SNL/NM EOC staff includes an Emergency Director and a staff of Sandia and DOE personnel who are responsible for the management decisions and notifications to outside parties that are required during an emergency response (Section E.5.3). EOC staff personnel are available on site at SNL/NM from 8:00 am–4:30 pm, Monday through Friday, and are on call the rest of the time.

In the field, the IC maintains overall management and control of response operations at the emergency site. The IC works in a unified command with the KAFB Fire Department and in concert with safety personnel, Unit-specific personnel (e.g., EC), and other emergency responders to develop and execute response plans, including on-site protective actions and recommendations for off-site protective actions. The ICS system is implemented at the time an emergency occurs, is expanded to control the emergency as needs arise, and remains in effect until the need for emergency management no longer exists.

E.3.3 Emergency Chain of Command

When the EC is notified of an incident, he must first determine if procedures for emergencies (Section E.5) should be implemented. The EC manages the emergency response (Section E.3.1) until the IC arrives at the Unit and relinquishes control to the arriving IC. If possible, the EC maintains communication with the IC by telephone or radio before the IC arrives at the Unit. The EC remains at the Unit and assists in emergency response as directed by the IC. The EC advises the IC, as needed, on Unit operations, Unit layout, characteristics of RCRA-regulated waste on site, location of records, radio and cellular communication systems, and other information as necessary to respond to the emergency.

The SNL/NM IC is the liaison for communications with other emergency response organizations and functions, including medical and fire protection support. The EC can request both medical and fire protection services, if necessary, at the same time that he/she notifies the IC of the emergency.

E.3.4 Support Agreements and Coordination with Outside Agencies [20 NMAC 4.1.500/40 CFR 264.37]

Sandia/DOE maintain sufficient response resources to handle most emergencies arising from RCRA-regulated waste management activities as described in this contingency plan. These response resources include personnel, emergency equipment, medical facilities, and communications systems. DOE also has established mutual aid agreements and memoranda of understanding with several off-site agencies and facilities for additional response capabilities for SNL/NM. These agencies and facilities include:

Table E-2
Agreements and Memoranda of Understanding for Emergency Response

Agency or Facility	Type of Service
New Mexico Department of Public Safety	Mutual aid involving an actual or potential emergency, assistance in training and emergency response for local and tribal governments.
377th Air Base Wing, Kirtland Air Force Base	Various types of support, including fire protection, police services, communications, and utilities.
U.S. Forest Service	Cooperative fire fighting arrangement between the USFS and KAFB for wildland fires.
City of Albuquerque	Mutual support and responsibilities during a potential or actual emergency requiring the combined resources of DOE and the City of Albuquerque.
University of New Mexico Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
St. Joseph Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
Lovelace Medical Center	Mutual cooperation and assistance in providing timely and effective emergency medical services.
Presbyterian Health Care Services	Mutual cooperation and assistance in providing timely and effective emergency medical services.

E.4 EMERGENCY EQUIPMENT [20 NMAC 4.1.500/40 CFR 264.32, 264.33, 264.34, and 264.52(e)]

A list of equipment available through the SNL/NM emergency response system is provided in Table E-3. Lists of emergency equipment available for use at each Unit are presented in each Unit-specific module.

E.5 CONTINGENCY PLAN IMPLEMENTATION [20 NMAC 4.1.500/40 CFR 264.56]

Unit personnel who become aware of an incident contact the EC immediately. If the incident is an emergency, personnel implement evacuation procedures identified in Section E.5.2 Personnel also immediately notify the Unit-specific EC or alternate EC of the emergency condition. The EC will then assess the situation and determine the scale of the incident.

If the EC determines that an emergency situation exists at the Unit, he will immediately notify the SNL/NM EOC and activate this Contingency Plan. The methods for contacting emergency response representatives are listed in Table E-4.

Table E-3
Sandia National Laboratories/New Mexico (SNL/NM) Facility[a] Emergency Equipment
2-18-2003

Item or Equipment	Description/Telephone
Emergency Vehicles (owned by Sandia/DOE unless noted)	
Emergency Response Vehicle	Mobile Command Post equipped with communications equipment, typically located at SNL/NM EOC[b]. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Ambulance	Typically located at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Security Vehicles	Vans and trucks equipped with communications equipment and utilized for transportation of personnel and equipment, typically located throughout SNL/NM. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Fire Trucks (owned by KAFB Fire Department)	Fire-fighting vehicles outfitted with equipment for fighting fires, typically located at KAFB fire stations. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Medical Supplies (owned by Sandia/DOE)	
Stretchers/Stokes Litter	Equipment for movement of injured personnel. Stokes litter will immobilize personnel so they may be moved vertically. Typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Blankets	Normal blankets, typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Medical Kits	Emergency first-aid supplies, typically located in ambulance or at SNL/NM medical facility. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Safety Supplies (owned by Sandia/DOE)	
Air Packs	Self-contained breathing apparatus for use by personnel entering hazardous atmospheres, typically located in ambulance or response vehicle. SNL/NM Emergency Response System — Call 911 or (505) 844-0911
Monitoring Instruments	Typically located in ambulance or emergency response vehicle. SNL/NM Emergency Response System — Call 911 or (505) 844-0911

[a] Lists of equipment available at each Unit are included in a table in each Unit-specific module.
[b] The SNL/NM EOC is located in TA-I.

Table E-4
Emergency Response System Notification, Sandia National Laboratories/New Mexico

Method	Number
Telephone (at Unit)	911
Mobile Telephone	(505) 844-0911
Portable Radio	NA
Automatic notification of emergency response when smoke detector or pull station is activated and/or water flows in sprinkler system	NA

Note: Any person in any Unit is authorized to implement the evacuation procedures, notify the EC or alternate EC, and/or contact the emergency response representatives in the unlikely event that the EC or alternate EC cannot be contacted or respond in a timely manner.

E.5.1 Emergencies

In the event of an emergency, the EC, an assignee, or Unit personnel (see note above) will immediately telephone the SNL/NM EOC (911 or 844-0911) or notify them in some other way (see Section E.5). Emergencies require the activation of this Contingency Plan and SNL/NM emergency response resources.

The EC will relinquish authority to the IC upon arrival as described in Section E.3.3. The EC and the IC will:

- Determine the extent of the emergency;
- Identify the character, source, amount, and areal extent of released materials by observation, records reviews, or chemical analysis;
- Assess possible resulting hazards to human health or the environment, considering both direct and indirect effects;
- Take all reasonable measures necessary to ensure fires, explosions, and releases do not occur, recur, or spread to other RCRA-regulated waste at the Unit, including collecting and containing released waste, and removing or isolating containers; and
- Monitor for leaks, pressure buildup, gas generation, and ruptures in equipment.

E.5.1.1 Fire

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing fire.

1. All non-essential Unit personnel should evacuate (Section E.5.2) following the evacuation routes in Section 6.0 of each Unit-specific module, , or to an alternate assembly location as directed by the EC. All Unit personnel may evacuate at this time.

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. ONLY if safe to do so, Unit personnel may consider taking action to put out the fire or minimize its spread. These actions may be taken only after the SNL/NM IC and KAFB Fire Department have been notified. Personnel must not jeopardize their own safety or the safety of other personnel.

   - If the fire is small and the fuel source is small, portable fire extinguishers may be used to put out the fire.

   - Fire extinguishers may only be used by personnel trained in their use and in this Contingency Plan, and only for very small fires.

   - Flammable materials should be removed from the area of fire if safe to do so.

   - Only appropriate fire extinguishers and/or fire extinguishing agents are to be used for water-reactive waste (e.g., Met-L-X, Lith-X, or equivalent).

4. If the fire spreads or increases in intensity, all remaining personnel must evacuate (see Step 1).

5. The EC should remain near the site, but at a safe distance, so he can advise the personnel responding to the fire of the known hazards.

6. Upon arrival at a fire, the KAFB Fire Department officer-in-charge will be in command of fire fighting. He will accept and evaluate the advice of Sandia/DOE Unit and emergency response personnel, but he retains the responsibility to select the fire-fighting methods and tactics.

7. The IC will be in overall control of Sandia/DOE emergency response efforts until the emergency is terminated.

8. RCRA-regulated wastes involved in a fire can be identified in the following ways: The location of the container may indicate the contents. If the location does not indicate its contents, the label number can be used to identify the material. Records on the contents of each container can be accessed from outside the Unit or in the Unit office. If the label has been burned and the container cannot be identified, the material will be treated as an unknown and analyzed according to methods in the Waste Analysis Plan (Appendix B to the General Part B.)

9. Residues of RCRA-regulated wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

10. If needed, affected surfaces will be cleaned using cleaners appropriate to the chemicals.

11. If possible and safe to do so, responding personnel will take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, personnel will build dikes around storm drains.

12. Any fire-fighting waters collected in the stormwater catchment and retention ponds at the HWMF and RMWMF or the floor trenches at the AHCF will be analyzed to determine an appropriate disposal method.

E.5.1.2 Explosion

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing explosion.

1. Unit personnel will immediately evacuate the area (Section E.5.2).

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. The EC will remain near the site, but at a safe distance, so he can advise the response personnel of the known hazards involved and the degree and location of the explosion and associated fires.

4. Upon arrival at the site, the KAFB fire department officer-in-charge will be in command of fire fighting. He will accept and evaluate the advice of Sandia/DOE personnel and emergency response organization members, but he retains the responsibility to select the fire-fighting methods and tactics.

5. The IC will be in overall control of Sandia/DOE emergency response efforts until the emergency is terminated.

6. Residues of RCRA-regulated wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

7. If needed, affected surfaces will be cleaned using cleaners appropriate to the chemicals.

8. If possible, responding personnel will take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, personnel will build dikes around storm drains.

9. Any fire-fighting waters collected in the stormwater catchment and retention ponds at the HWMF and RMWMF or the floor trenches at the AHCF will be analyzed to determine an appropriate disposal method.

10. The EC will secure all operational units (e.g., process equipment, ventilation equipment) that may be affected directly or indirectly by the explosion once the areas needed to be entered have been determined safe by the IC or a safety officer.

E.5.1.3 Uncontrolled Release

The following steps will be implemented as needed in the event of an emergency involving an imminent or existing release of RCRA-regulated waste or hazardous waste constituents.

1. Evacuate the immediate area (Section E.5.2).

2. The EC (or Unit personnel) must immediately notify the Sandia/DOE ERO and KAFB Fire Department by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

3. Take actions to minimize, contain, and clean up the release only if safe to do so.

4. Review facility records (e.g., waste inventory database) to determine the identity and chemical nature of released material.

5. Don appropriate personal protective equipment for exposure to the material.

6. If possible, secure the source of the release.

7. If necessary and possible, build a dike to contain runoff.

8. Take measures to contain potentially hazardous runoff and keep it away from storm drains and/or sewers. If possible, build dikes around storm drains.

9. Released wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate; pouring an absorbent over the spilled material; and sweeping or shoveling the absorbed material into drums or other appropriate containers.

10. No waste that may be incompatible with the released material will be treated, stored, or disposed of until cleanup procedures are complete.

11. After collection of a released material, the release site will be sampled and evaluated. If contamination is found to exist, contaminated materials may be collected, drummed (if appropriate), and removed from the site for disposal at a permitted disposal facility. Depending on the specific conditions, however, Sandia/DOE may choose to implement an alternative decontamination method such as surface cleaning or in situ

neutralization or stabilization. Any such alternative will be discussed with the NMED prior to implementation.

E.5.2 Evacuation [20 NMAC 4.1.500/40 CFR 264.52(f)]

During an emergency that threatens the health or safety of personnel within a Unit, the following steps will be taken as needed to facilitate safe, coordinated evacuation:

1. Stop work.

2. If safe to do so, close containers and shut down equipment or otherwise place it in a safe mode.

3. Alert personnel in the affected area by announcing the evacuation by voice command, “Evacuate the Area.”

4. Activate the available Unit-specific evacuation signal consistent with the internal communications and alarm systems that are listed in Section 6.0 of each Unit-specific module.

5. Notify the Sandia/DOE ERO by activating a manual pull alarm or by dialing the SNL/NM EOC at 911 or 844-0911. Medical response can also be requested at the same time. The KAFB Fire Department and Sandia/DOE ERO will also be notified by activation of an automatic fire alarm.

6. Check to see whether there is evidence that the designated evacuation route is not safe.

7. If there is no evidence of danger or obstacles, exit the Unit according to the evacuation routes provided in Section 6.0 of the Unit-specific module.

8. If there is evidence of danger or obstacles, exit the Unit by any safe route available.

9. If safe to do so, check for other personnel in other areas of the Unit.

10. Proceed to the designated assembly area for roll call to be taken by the EC or designee.

11. If the EC and unit personnel are assembling at an alternate location, proceed to that location.

12. Inform the EC or designee about any other people still believed to be inside the Unit.

13. Do not reenter the Unit until the IC or EC determines that is safe to do so.

E.5.3 Coordination with Off-Site Parties and Emergency Notification [20 NMAC 4.1.500/40 CFR 264.56(a) and (b)]

The Sandia EOC notifies DOE of all emergencies at SNL/NM. Sandia/DOE will notify state and local agencies if state or local response resources are required (see Section E.3.4), if human health or the environment are threatened outside the SNL/NM facility, or if areas outside the SNL/NM facility may require protective action. Sandia/DOE will verbally notify the City of Albuquerque or Isleta Pueblo, respectively, as soon as possible in the unlikely event that residents of Albuquerque or Isleta Pueblo outside KAFB are or could be affected. The notification will include available information about the nature and location of the emergency, the materials involved, and the recommended protective actions. The most likely protective actions are expected to include evacuation or sheltering indoors with doors and windows closed and ventilation systems shut off.

In the event of an emergency involving injuries that require medical services from one of the hospitals listed in Table E-2, Sandia/DOE will provide all available information about the event and the materials involved to the responders as soon as possible.

Sandia/DOE will also notify the National Response Center (1-800-424-8802) if human health or the environment are threatened outside the facility. The notification will include the following:

- Name and telephone number
- Facility name and address
- Time and nature of emergency
- Type and quantities of materials involved to the extent known
- Personnel injuries, and
- Potential hazards to human health, or the environment, outside the facility.

Sandia/DOE will also provide this information to the NMED in accordance with regulatory requirements, including verbal notification (1-505-827-9329 or other emergency notification number designated by NMED).

E.6 POST-EMERGENCY ACTIONS [20 NMAC 4.1.500/40 CFR 264.56(f-i)]

Immediately after an emergency, the EC (and the IC, when present) will:

- Continue to monitor for leaks, pressure buildup, gas generation, and ruptures in valves, pipes, or other equipment if the Unit stops operations;

- Provide for properly treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material;

- Ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

- Ensure that all equipment used in responding to the emergency that is listed in either this site-wide plan or the Unit-specific Contingency Plan is cleaned and fit for its intended use before resuming operations.

Prior to resuming operations after an emergency involving RCRA-regulated waste in the affected area(s) of the Unit, Sandia/DOE will notify NMED that incompatible waste will not be managed until cleanup procedures are complete and equipment listed in the Unit-specific Contingency Plan is cleaned and fit for use.

E.7 EMERGENCY RESPONSE RECORDS AND REPORTS [20 NMAC 4.1.500/ 40 CFR 264.56(j)]

The time, date, and details of an emergency involving RCRA-regulated waste that require implementation of this Contingency Plan will be noted in the Operating Record maintained for the affected Unit. Within 15 days after the incident, a written report will be submitted to the NMED identifying:

- Name, address, and telephone number of the facility owner or operator
- Name, address, and telephone number of the facility
- Date, time, and type of incident (e.g., fire, explosion, release)
- Name and quantity of material(s) involved
- Extent of injuries (if any)
- Assessment of actual or potential hazards to human health or the environment, where applicable, and
- Estimated quantity and disposition of recovered material that resulted from the incident.

APPENDIX F

SITE-WIDE CLOSURE PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO RESOURCE CONSERVATION AND RECOVERY ACT-REGULATED WASTE MANAGEMENT UNITS

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... SW-F-ii
LIST OF FIGURES ..... SW-F-iii
ACRONYMS AND ABBREVIATIONS ..... SW-F-iv
F.1 INTRODUCTION SW-F-1
F.2 SITE DESCRIPTION SW-F-1
F.3 WASTE DESCRIPTION, MAXIMUM VOLUME STORED, AND INVENTORY ELIMINATION SW-F-2
F.4 CLOSURE PERFORMANCE STANDARDS SW-F-2
F.5 CLOSURE METHOD SW-F-3
F.5.1 Phase I: DQO Process and Closure Approach SW-F-4
F.5.2 Phase II: Removal, Decontamination, and Verification Procedures SW-F-6
F.5.2.1 Treatment Units SW-F-7
F.5.2.2 Container Storage Units SW-F-8
F.5.3 Phase III: Closure Certification SW-F-9
F.6 SAMPLING AND ANALYSIS PLAN SW-F-9
F.6.1 Sample Locations, Collection, Handling, and Quality Control SW-F-11
F.6.1.1 Sample Collection Documentation SW-F-11
F.6.1.2 Sample Identification SW-F-11
F.6.1.3 Sample Preservation, Handling, and Shipment Preparation SW-F-11
F.6.1.4 Quality Control Sampling SW-F-11
F.6.1.5 Analysis Request/Chain-of-Custody Form SW-F-12
F.6.1.6 Sampling Equipment Decontamination Procedures SW-F-12
F.6.1.7 Waste Management SW-F-12
F.6.2 Laboratory Analysis and Quality Control SW-F-12
F.6.3 Data Management and Reporting SW-F-13
F.7 CLOSURE SCHEDULE SW-F-13
F.8 CLOSURE PLAN AMENDMENT SW-F-14
F.9 FINANCIAL REQUIREMENTS SW-F-14
F.10 POST-CLOSURE CARE SW-F-15
F.11 SURVEY PLAT SW-F-15
REFERENCES SW-F-15

LIST OF TABLES

Table No.	Title
F-1	Facilities That May Receive RCRA-Regulated Wastes from Closure Activities at Sandia National Laboratories/New Mexico
F-2	Sampling and Analysis Plan for Closure of Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units
F-3	Closure Schedule for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units

LIST OF FIGURES

Figure No.	Title
F-1	Sandia National Laboratories/New Mexico, Technical Areas (TAs) and Resource Conservation and Recovery Act-Regulated Waste Management Units

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
ASTM	American Society for Testing and Materials
CWMF	Consolidated Waste Management Facility
DOE	U.S. Department of Energy
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
HWMF	Hazardous Waste Management Facility
NAAG	National Association of Attorneys General
NMED	New Mexico Environment Department
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
TSDF	treatment, storage, or disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

SITE-WIDE CLOSURE PLAN FOR SANDIA NATIONAL LABORATORIES/NEW MEXICO

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX (20 NMAC 4.1.900), incorporating the Code of Federal Regulations, Title 40, Part 270, including Section 270.14(b)(13) (40 CFR 270.14[b][13]), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, revised October 1, 2003 [10-1-03], closure requirements for Resource Conservation and Recovery Act (RCRA)-regulated waste management units (Units) at Sandia National Laboratories/New Mexico (SNL/NM), co-operated by Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), are provided in this site-wide closure plan and in Section 7.0 of each Unit-specific module. Together, information in the General Part B, in this appendix, and in each Unit-specific module meets the applicable regulatory requirements.

F.1 INTRODUCTION (20 NMAC 4.1.500/40 CFR 264.111 AND 264.112[b][2])

This site-wide closure plan was prepared in accordance with the applicable requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G, “Closure and Post-Closure” [10-1-03]. This plan identifies the steps necessary for closure of individual RCRA-permitted storage and treatment Units at SNL/NM. Partial closure at SNL/NM will consist of closing one or more of the SNL/NM Units, while leaving the other Units in service. Partial closure will be deemed complete when equipment and structures have been decontaminated, as needed; the Unit meets the performance criteria for “clean” closure; and closure certification has been submitted to the New Mexico Environment Department (NMED). Final closure will be complete when all Units at the SNL/NM facility have been closed. Neither partial nor final closure is expected to occur during the life of the permit.

Closure information applicable to all Units at SNL/NM (Figure F-1) and general sampling and analytical procedures to be used during closure activities are presented in this appendix. This plan presents closure information that is applicable to all Units at the site, while information regarding individual Units is provided in Section 7.0 of the appropriate Unit-specific module. Prior to closure of a Unit, the Unit-specific module will be revised, as needed (e.g., to provide updated Unit-specific sampling and analysis plans [SAPs], or to incorporate updated decontamination technologies), and submitted to NMED for approval.

F.2 SITE DESCRIPTION

SNL/NM (U.S. Environmental Protection Agency [EPA] Identification Number NM5890110518) is a multidisciplinary laboratory engaged in the research and development of weapons and alternative energy sources. SNL/NM is managed by Sandia, a wholly-owned subsidiary of Lockheed Martin, for the DOE. Generation and management of RCRA-regulated wastes occur at SNL/NM as part of these activities. SNL/NM is located south of Albuquerque, New Mexico, within the boundaries of Kirtland Air Force Base in Bernalillo County. Descriptions of individual Units are provided in Section 7.1 of each Unit-specific module.

F.3 WASTE DESCRIPTION, MAXIMUM VOLUME STORED, AND INVENTORY ELIMINATION (20 NMAC 4.1.500/40 CFR 264.112[B][3])

The types and quantities of RCRA-regulated wastes managed at the SNL/NM Units are highly variable and may include, but are not limited to, laboratory chemical waste, contaminated used oil, process waste, explosive waste, used batteries, unknown liquids and solids, elemental lead, contaminated soil, debris, decontamination/purge/treatment waters, and treatment residuals.

The maximum storage and/or treatment capacity for RCRA-regulated wastes at each SNL/NM Unit is provided in Section 7.2 of each Unit-specific module. This capacity corresponds to the maximum volume that can be present on site at any one time, and is the largest quantity of waste that would be addressed during closure activities.

The first step in closure of a Unit will be elimination (removal) of any waste inventory stored in the Unit. Prior to initiation of further closure activity, all RCRA-regulated wastes will be removed from the Unit and will be either transferred to an active Unit at SNL/NM or transported directly to an off-site permitted treatment, storage, or disposal facility (TSDF). Off-site TSDFs that might receive these wastes are listed in Table F-1.

Table F-1
Facilities That May Receive RCRA-Regulated Wastes from Closure Activities at Sandia National Laboratories/New Mexico

Name	Location	EPA ID Number
Rinchem Company, Inc	6133 Edith Blvd NE, Albuquerque NM 87107	NMD002208627
Ensco, Inc	309 American Circle, Eldorado AR 71730	ARD069748192
NSSI/ Sources and Services, Inc	5711 Etheridge St, Houston TX 77087	TXD982560294
Waste Control Specialists, LLC	9998 W. Highway 176, Andrews TX 79714	TXD988088464
Envirocare of Utah, Inc	Interstate 80, Exit 49, Clive UT 84101	UTD982598898
Permafix Environmental Services Inc	901 East Bodley, Memphis TN 38106	TND991279480

F.4 CLOSURE PERFORMANCE STANDARDS (20 NMAC 4.1.500/40 CFR 264.111)

- Sandia/DOE plan to clean close all Units to meet the following closure performance standards in 20 NMAC 4.1.500/40 CFR 264.111 [10-1-03]:Minimize the need for further maintenance;

- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of RCRA-regulated waste, hazardous waste constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and

- Comply with the applicable closure and post-closure requirements of 20 NMAC 4.1.500/ 40 CFR 264, Subparts G, I, and X [10-1-03].

The closure criteria that are applicable to individual Units and that will be used to demonstrate clean closure are presented in tables in Section 7.0 of each Unit-specific module.

F.5 CLOSURE METHOD (20 NMAC 4.1.500/40 CFR 264.112[b][1,2,4,5], 264.114, AND 264.115)

Sandia/DOE expect to demonstrate compliance with the closure performance standards in 20 NMAC 4.1.500/40 CFR 264.111 through 264.115 [10-1-03], as applicable, for SNL/NM Units. Closure methods proposed in this plan are based on the following assumptions about conditions during the operational life of SNL/NM Units:

- RCRA-regulated wastes were stored in containers (e.g., drums);
- Containers used to store and/or treat RCRA-regulated wastes retained their integrity;
- Adequate secondary containment was provided for RCRA-regulated liquid wastes and liquid-bearing wastes;
- Appropriate spill cleanup and decontamination procedures were performed in response to releases, if any, of RCRA-regulated wastes at Units;
- Releases of RCRA-regulated waste and/or hazardous waste constituents to the environment did not occur;
- Equipment used in waste treatment was maintained properly; and
- The Units were maintained in good condition.

These assumptions are derived from historical knowledge of waste management practices and policies, as well as applicable written records (e.g., inspection logs, survey results, waste inventory reports, facility/activity descriptions).

In order to demonstrate achievement of the closure performance standards listed in Section F.4, Sandia/DOE propose to perform the following general closure activities:

- Phase I: Data Quality Objective Process and Closure Approach.
  - The data quality objective (DQO) process will continue to be implemented to ensure that the type, quantity, and quality of information used in decision making are appropriate for the intended application.

- Phase II: Closure Activities—Removal, Decontamination, and Verification Procedures.
  - Equipment will be evaluated to determine whether removal or decontamination would be more effective.
  - Loose material (e.g., soil), if present in waste management areas (WMAs), will be swept up and containerized.
  - Appropriate portions of each WMA (including equipment, if necessary) will be washed to remove waste residues.
  - Decontamination rinse water will be collected, sampled, and analyzed to verify clean closure.
  - Additional decontamination will be performed, if necessary, in any areas where analytical results indicate that residues of RCRA-regulated wastes remain at levels exceeding the closure criteria.
  - Solid wastes generated during closure activities will be characterized and managed appropriately.
- Phase III: Certification of closure.
  - Closure will be certified by an independent, registered professional engineer.

Closure "phases" are fully described in Sections F.5.1–F.5.3. The site-wide SAP is provided in Section F.6, and Unit-specific closure plans (which include SAPs) are included in Section 7.0 of each module. The Unit-specific plans will be revised, as needed, and submitted to NMED for approval prior to closure of a given Unit, as described by the closure schedule referenced in Section F.7.

F.5.1 Phase I: DQO Process and Closure Approach

The DQO process is designed to ensure that the type, quantity, and quality of environmental data used in decision making are appropriate for the intended application. DQOs are qualitative and quantitative statements derived from a series of seven planning steps based on the scientific method. DQO statements applied to development of this plan and the closure activities at SNL/NM Units are summarized below.

Define the Problem. The Unit to be closed is no longer needed for RCRA-regulated waste management activities at SNL/NM and should be closed under applicable closure requirements. RCRA closure must meet the performance standards in 20 NMAC 4.1.500/ 40 CFR 264.111 [10-1-03] (see Section F.4).

Identify the Decision. What are the appropriate closure criteria for the Unit, and will decontamination of the Unit meet the criteria ? If the criteria are met, closure certification will be

submitted to the Secretary of the NMED. If not, the stated closure criteria will be met before closure certification.

Identify Inputs to the Decision. The inputs include the following:

- Information regarding constituents in the RCRA-regulated wastes stored and/or treated in the WMA.
- Evidence of incidents or activities that may have resulted in RCRA-regulated waste or constituent contamination of the WMA.
- Physical condition and features of the WMA (including equipment used for treatment activities) and visual evidence of contamination.
- Anticipated level of effort and likelihood of success in decontaminating equipment used for treatment activities.
- Results of decontamination activities undertaken during closure, including analytical data.
- Established concentrations of constituents of concern in the environment (e.g., correspondence from NMED [Robert S. Dinwiddie] to DOE [Michael Zamorski], dated September 24, 1997).

Define the Boundaries. The evaluation will be limited to information that is relevant to activities conducted in the WMA and the planned closure activities:

- Information obtained from review of applicable archival records of RCRA-regulated waste storage and treatment activities during the operating life of the WMA (e.g., inspection logs, operating record, and waste inventory reports).
- Features of equipment used in treatment areas (e.g., fume hoods), and requirements for removing or decontaminating the equipment.
- Using parameters relevant to the operating history of the WMA in characterizing equipment for proper management.
- Limiting Phase II decontamination activities to affected areas. The decontamination will be limited to the hardened surfaces present in the WMA (e.g., concrete floors). If decontamination of equipment is required, the decontamination effort will be limited to equipment directly associated with waste management. If decontamination of secondary containment surfaces is required, the decontamination effort will be limited to the bottoms and sides up to the secondary containment level.
- Samples collected during decontamination activities will be analyzed for parameters that are relevant to the operating history of the WMA to demonstrate clean closure and to characterize closure-generated wastes for proper management.

Develop the Decision Rule. The decision consists of two parts: 1) defining Unit-specific closure criteria to indicate when the closure performance standard has been achieved; and 2) determining whether the results of the closure activities satisfy the closure criteria.

To meet the first part, the information obtained from the records review will be used to select parameters to indicate the potential presence of waste constituents. The SAP in each Unit-specific closure plan describes the rationale for the indicator parameters currently selected for closure verification sampling.

If analytical results of indicator parameters in residues (e.g., sweepings) and decontamination rinse water do not show significantly elevated concentrations, the WMA will be considered to be clean closed, and the closure certification step may commence.

Specify Limits on Decision Errors. Because measurement data from sampling and analysis can only estimate true values, there is always a possibility that decisions made based on measurement data will be in error. Decision errors can be attributed to either sampling error (when incorrect sampling fails to adequately represent the true environment) or measurement errors (when the combinations of random and systematic errors in the measurement process inaccurately represent the true values). Precautions taken to minimize either type of decision error when performing RCRA closure of the Unit to be closed are discussed in the SAP included as Section F.6 of this plan and in each Unit-specific plan.

Optimize Design. The results of the first steps will be evaluated and used in developing resource-effective strategies for sampling and analysis and for closure. The data will be used to determine if the closure activities were successful and the WMA meets the second part of the decision rule following removal or decontamination of equipment and decontamination of affected surfaces.

F.5.2 Phase II: Removal, Decontamination, and Verification Procedures

Sandia/DOE will evaluate the features of equipment used in treatment areas at those Units where treatment is conducted. Smaller pieces of equipment, parts of larger pieces, or equipment with porous or textured surfaces will be evaluated to determine whether removal is the most effective option. Removed items will be characterized to determine if they are RCRA-regulated wastes, in accordance with the applicable requirements of 20 NMAC 4.1.200/40 CFR 261.

Decontamination will be performed as described below. All sampling conducted during decontamination will be done in accordance with sampling procedures in Section F.6 of this plan.

To the extent possible, all contaminated structures, surfaces, and equipment (if appropriate) at a Unit will be decontaminated. The following general principles apply to decontamination and verification of all Units at SNL/NM:

- Verification samples will be collected to demonstrate that the applicable closure criteria are met. The decontamination verification samples will be collected as specified in a Unit-specific closure plan SAP.

- Only those areas (e.g., floor grids) that do not meet closure criteria (based on results from rinse water sampling) will require further decontamination and verification sampling.

- Before transport off site or use elsewhere on site, all equipment used for closure will be decontaminated via scraping and rinsing with high pressure water, steam, or other appropriate industrial cleaning solution until no visible evidence of contamination is present. Equipment decontamination may be performed in a specific decontamination staging area with adequate containment.

- Used wash water and rinse water may be discharged into the City of Albuquerque sewer treatment system, provided the results of sampling and analysis meet the criteria of the discharge permit.

- Most personal protective equipment, plastic sheeting, and sampling equipment used by personnel performing decontamination activities will be disposable. These materials will be placed in containers and characterized to determine if they are RCRA-regulated wastes, in accordance with all applicable requirements of 20 NMAC 4.1.200/40 CFR 261 [10-1-03].

- Any RCRA-regulated wastes generated during closure (e.g., equipment, contaminated floor sweepings) will be managed in accordance with all applicable requirements of 20 NMAC 4.1.300/40 CFR 262.34 [10-1-03], pending arrangements for transfer to an active SNL/NM Unit or an off-site permitted TSDF.

- Sandia/DOE may propose improved decontamination technologies or an alternative demonstration of decontamination at the time of closure. This information would be submitted to NMED prior to implementation of closure in a revised Unit-specific closure plan.

- Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

The following sections describe decontamination procedures applicable to specific types of Units.

F.5.2.1 Treatment Units

The closure processes described below are appropriate for indoor storage areas and for indoor areas at Units where treatment in containers occurs (i.e., the Consolidated Waste Management Facility and the Auxiliary Hot Cell Facility). The closure processes described below are also appropriate for the Thermal Treatment Facility (TTF) treatment equipment. Closure activities (if needed) for areas immediately surrounding the TTF treatment equipment are addressed in the SAP in Section 7.5 of Module II.

Many of the closure processes appropriate for floor surfaces in storage and treatment areas are also appropriate for large pieces of equipment (e.g., fume hoods). The processes for equipment

decontamination are described in the following section. Alternatively, Sandia/DOE may choose to manage treatment equipment (e.g., exhaust ductwork from fume hoods in treatment areas) as solid waste.

F.5.2.2 Container Storage Units

The decontamination procedures described below are designed to satisfy closure performance standards by describing the steps taken to remove or decontaminate all RCRA-regulated waste residues and contaminated containment system components, equipment, and structures during closure. Soil and groundwater are not expected to be impacted by operations at container storage Units, as the Units are located inside buildings for protection from the weather, are equipped with impermeable secondary containment systems, and are regularly inspected and maintained.

The decontamination techniques described below apply to hardened surfaces present in container storage Units (e.g., asphalt, concrete, sheet plastic, and metal). These surfaces may include floors, secondary containment structures, and miscellaneous equipment. Not all steps will be required for each surface; some steps are contingent on the outcome of prior steps. The procedures described below are intended to allow structures and equipment in the Units to be returned to service in the management of non-RCRA regulated materials, and may be revised before closure to incorporate new practices or technology.

- Remove gross residual material (e.g., soil from floors) using brooms, mechanical sweepers, or similar equipment.
- Collect a composite grab sample of the floor sweepings to be analyzed for the indicator parameters identified in Unit-specific SAPs.
- Inspect all surfaces for cracks or gaps prior to decontamination.
- Formulate a wash solution of water and non-phosphate detergent for decontamination. Prior to use, collect a grab sample of the wash solution to be analyzed for the indicator parameters identified in Unit-specific SAPs.
- Wash appropriate hardened surface areas (e.g., floors, secondary containment, non-disposable equipment) with the non-phosphate detergent solution. Large areas to be washed will be cleaned according to grids established in Unit-specific SAPs. Washing may be done with mops/sponges or with pressure washers, depending on the degree of contamination or other conditions at the time of closure.
- Use portable berms or other containment structures (e.g., enclosed areas covered with polyethylene sheeting) to contain and collect decontamination wash and rinse waters.
- Allow surfaces to air dry.
- Conduct a walk-through visual inspection of all decontaminated surfaces.

- Repeat surface wash and wash/rinse water collection procedures until all visible signs of contamination have been removed. Visible contamination that cannot be removed by washing will be removed by scraping or chipping using appropriate tools and equipment.

- Verify the absence of visible contamination using a site inspection logbook or memo entries and visual documentation (e.g., videotaping, photographing).

- Collect two grab samples of decontamination wash and rinse water from each decontaminated area or item for analysis of the indicator parameters (as identified in the Unit-specific SAP).

F.5.3 Phase III: Closure Certification

An independent, registered professional engineer will certify that closure activities followed the approved plan. Upon completion of closure, a letter certifying that the Unit was closed according to the approved plan will be prepared. The letter will be dated and signed by the engineer and will be stamped by the engineer with his or her professional seal. The original copy will be submitted to the Secretary of the NMED.

Upon completion of closure activities, Sandia/DOE will submit closure information to the Secretary of the NMED. This information will include:

- Certification of closure,
- Location and custodian of all closure documentation,
- Discussion of closure activities, and
- Laboratory analyses/results summaries.

Additional information will be available, upon request, in the documentation supporting the independent, registered professional engineer's certification in accordance with 20 NMAC 4.1.500/40 CFR 264.115 [10-1-03]. The supporting documentation will include:

- Original laboratory data package(s), and
- Quality assurance (QA)/quality control (QC) documentation for contract laboratory analyses.

F.6 SAMPLING AND ANALYSIS PLAN (20 NMAC 4.1.500/40 CFR 264.112[b][4,5])

Sampling and analysis activities will be performed to verify decontamination and demonstrate clean closure (Phase II) and for waste characterization purposes, as necessary (e.g., certain closure-generated wastes). Sample collection will be performed in accordance with established sampling procedures (e.g., EPA, American Society for Testing and Materials [ASTM]) or equivalent methods so that samples are representative of Unit conditions at closure. Sample collection equipment and techniques are generally described in this site-wide closure plan, and sampling methods/types are summarized in Table F-2. Unit-specific closure SAPs are provided in Section 7.5 of each Unit-specific module.

Table F-2
Sampling and Analysis Plan for Closure of Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act (RCRA)-Regulated Waste Management Units

Activity	Sampling Method/Type	Parameters of Interest[a]	Sample Number/ Frequency
Operations and site reviews	1) Visual observation 2) Review of Unit documentation/records	1) Staining, discoloration 2) (Identify) hazardous waste indicator parameters	1) Not applicable 2) Not applicable
Decontamination of equipment	Liquid sampling	Hazardous waste indicator parameters	1 clean wash water, 2 used wash water, and 2 used rinse water per sampling area location [b]
Decontamination of floor/secondary containment surface	1) Floor sweepings (soil) sampling 2) Liquid sampling	1) Physical state 2) Hazardous waste indicator parameters	1 soil sample per WMA; 1 clean wash water, 2 used wash water, and 2 used rinse water per sampling grid location [b]
Characterization of contaminated equipment	1) Review of Unit documentation/records 2) Acceptable knowledge 3) Wipe or bulk sampling, as appropriate	Hazardous waste characteristics	As appropriate
Characterization of decontamination equipment [c] (e.g., personal protective equipment, plastic sheeting, dry wipes, and tools)	1) Liquid sampling 2) Acceptable knowledge	1) Physical state 2) Hazardous waste indicator parameters	As appropriate
Quality control sampling	Equipment rinsate blanks and duplicate samples	1) Physical state 2) Hazardous waste indicator parameters	1 per day per piece of non-disposable sampling equipment [d], 1 per every 20 clean and used wash water and used rinse water samples [e]

[a] Samples will be analyzed for indicator parameters that have been selected to represent the RCRA-regulated waste and hazardous waste constituents known to have been managed during the operational life of the Unit. See Section 7.5 of the appropriate Unit-specific module.
[b] See the appropriate Unit-specific module for sampling areas and grids.
[c] Decontamination equipment wastes will be characterized using the results of decontamination sampling and analysis (e.g., used wash water, used rinse water, floor sweepings, as appropriate) or acceptable knowledge.
[d] Applicable to equipment rinsate blanks.
[e] Applicable to duplicate samples.

F.6.1 Sample Locations, Collection, Handling, and Quality Control

Unit-specific samples and locations are identified in Section 7.5 of each Unit-specific module. Representative samples of clean and used decontamination wash water and used decontamination rinse water will be collected using appropriate equipment. Sample collection methods may include grid sampling, chipping, coring, or drilling, as appropriate.

Samples will be collected, stored, and preserved in accordance with established and applicable procedures (e.g., EPA, ASTM). Samples will be analyzed for indicator parameters that have been selected to represent the RCRA-regulated wastes and hazardous waste constituents known to have been managed during the operational life of the Unit.

F.6.1.1 Sample Collection Documentation

Sample collection will be documented for each sample following QA/QC information established by EPA guidelines or equivalent methods.

F.6.1.2 Sample Identification

Each sample will be assigned a unique identifying number, as described in the Unit-specific SAP. Labels will be preformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample labels will include the following information:

- Name of sampler,
- Date and time of sample collection,
- Sample number,
- Sample matrix and how collected (i.e., grab composite),
- Preservation method, and
- Analysis required.

F.6.1.3 Sample Preservation, Handling, and Shipment Preparation

Sample preservation and handling will be in accordance with applicable QA requirements. Proper container, preservative, and holding time requirements for each parameter will follow EPA guidelines or equivalent methods. Sample shipment will be in accordance with U.S. Department of Transportation and International Air Transport Association shipping requirements, as applicable. Additional information is included in Section 7.5.2 of each Unit-specific module.

F.6.1.4 Quality Control Sampling

The quality of data from sampling efforts will be controlled by using blank and duplicate samples. Blanks and duplicate samples will be collected so that the extent of any contamination introduced during sample collection and handling and the precision of the total sample collection and laboratory analysis system can be determined. Sampling equipment rinsate blanks will be collected

at a frequency of one per day for each piece of non-disposable sampling equipment to determine if cross contamination has occurred. One in every twenty clean and used wash water and used rinse water samples collected will be submitted in duplicate for analysis and determination of precision. The blanks and duplicate samples will be treated as separate samples. Objectives for acceptable QC sample analytical results will follow available EPA guidance or equivalent methods. Unit-specific QC sampling is described in Section 7.5.4 of the appropriate Unit-specific module.

F.6.1.5 Analysis Request/Chain-of-Custody Form

In order to document the integrity of samples from collection to analysis, sample possession will be recorded on an analysis request/chain-of-custody form, which will be prepared for samples collected for laboratory analyses. A sample is in custody if it is:

- In someone's physical possession or view, and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel.

The form will include the same information as the label, will be initiated at the point of sample collection, and will be kept with the samples during transfer to the laboratory. The form will be completed upon receipt in the laboratory. Specific analysis request/chain-of-custody procedures will follow available EPA guidance or equivalent methods.

F.6.1.6 Sampling Equipment Decontamination Procedures

To minimize the potential for cross contamination between samples, disposable sampling equipment may be used. If reusable sampling equipment is used, it will be decontaminated as described in Section 7.5.2.4 of each Unit-specific module.

F.6.1.7 Waste Management

Minimal quantities of waste will be generated through the sampling procedures. The waste will primarily be miscellaneous solid, nonhazardous wastes such as cotton gloves, wipe media, sample container packaging, and label adhesive backing. All RCRA-regulated wastes generated during sampling activities will be managed as described in Section F.5.2.

F.6.2 Laboratory Analysis and Quality Control

Samples will be analyzed for indicator parameters that have been selected to represent the RCRA-regulated waste and hazardous waste constituents known to have been managed during the operational life of the Unit. See Section 7.5 of the appropriate Unit-specific module for additional information. Analytical procedures will conform to "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1986 and all approved updates), or other appropriate established methods.

The analytical laboratory will have a written QA plan and standard operating procedures in place to ensure sample preparation and analysis are performed properly and results are of the appropriate and documented quality to ensure that project-specific DQOs are met. Sandia/DOE may request both sets of documentation for review and approval prior to submission of closure samples. The laboratory will perform the following QC checks with each batch of samples at a minimum frequency of five percent:

- Matrix duplicate: Split aliquots of a sample are fortified with identical concentrations of target analytes and analyzed. The results are used to document the precision and bias of a method in the sample matrix.
- Matrix spike: An aliquot of sample is fortified with known concentrations of target analytes, the sample is prepared and analyzed, and the results are compared to the results of a split, non-fortified sample to determine and document the bias of the matrix on the analytical method.

F.6.3 Data Management and Reporting

Initial data reduction and validation will be done by the laboratory contracted to analyze the samples. The laboratory will report the data in accordance with their internal QC requirements. Duplicate laboratory control samples will be analyzed by the laboratory for indicators of bias and precision and will be reported as percent recovery and relative percent difference. QC acceptance criteria for bias and precision will be included in the analytical report.

Summary analytical and laboratory QC data will be transmitted to Sandia/DOE by the contractor laboratory. The analytical report will be in electronic and hardcopy formats. The laboratory will archive all raw data, notes, and bench sheets in a manner allowing retrieval upon request by Sandia/DOE. These records will include instrument tuning and calibration records, batch QC sample data, sample tracking and control documentation, raw analytical sample data, and analytical results.

F.7 CLOSURE SCHEDULE (20 NMAC 4.1.500/40 CFR 264.112[b][6], 264.112[d], AND 264.113)

The schedule for completion of closure activities is shown in Table F-3. Closure is expected to take 180 days. If unforeseen circumstances that impact this schedule arise during closure, a closure plan modification will be requested in accordance with 20 NMAC 4.1.500/40 CFR 264.113(b)(1)(i) [10-1-03].

Table F-3
Closure Schedule for Sandia National Laboratories/New Mexico Resource Conservation and Recovery Act-Regulated Waste Management Units

Activity[a]	Schedule[b]
Submit updated Unit-specific closure plan (Section 7.0 of appropriate Unit-specific module), if necessary	Prior to closure notification
Receive NMED approval of updated Unit-specific closure plan	Prior to closure notification
Notify NMED of closure	Day 0 minus 45
Begin closure activities	Day 0
Begin records review and site observations	Day 1
Develop closure criteria (Phase I)	Day 60
Conduct removal and decontamination activities (Phase II)	Day 100
Verify decontamination through sampling and analysis	Day 145
Complete final closure	Day 180
Submit closure certification to NMED	60 days later

[a] Some activities may be accomplished concurrently with others.

[b] This schedule represents estimated completion time; some activities may be completed earlier than scheduled. Also, the schedule assumes that updated Unit-specific closure plans will be approved by NMED prior to notification of closure by Sandia/DOE.

F.8 CLOSURE PLAN AMENDMENT (20 NMAC 4.1.500/40 CFR 264.112[c])

This site-wide closure plan will be amended if any changes occur in the operating plans or Unit design that affect the plan, such as Unit size or capacity, types of RCRA-regulated waste in the Unit at closure, maximum waste inventory, or the closure schedule. The plan will be amended if, during closure, unexpected events require the plan to be modified. Additionally, the plan will be amended if there are changes in technical considerations such as availability of new technology, changes in requirements, or operating contingencies.

This plan is intended to provide general closure policies and procedures applicable to all Units at the SNL/NM facility. It is expected that revisions to the Unit-specific modules made prior to closure will address all necessary information, without requiring amendments to this plan.

If this plan requires amendment(s), Sandia/DOE will request authorization from the NMED in writing, in accordance with 20 NMAC 4.1.500/40 CFR 264.112(c) [10-1-03].

F.9 FINANCIAL REQUIREMENTS (20 NMAC 4.1.500/40 CFR 264.140[c])

Cost estimates, financial assurance mechanisms, and liability coverage for closure and post-closure activities are not included in this site-wide closure plan. Federal facilities are exempt from these requirements, in accordance with 20 NMAC 4.1.500/40 CFR 264.140(c) [10-1-03].

F.10 POST-CLOSURE CARE (20 NMAC 4.1.500/40 CFR 264.117 THROUGH 264.120)

Sandia/DOE plan to clean close all operating RCRA-regulated waste management Units at the SNL/NM facility. Because all RCRA-regulated waste will be removed from the Units and the Units will be decontaminated at closure, a general post-closure care plan is not required. Potential post-closure care activities at the TTF are addressed in Module II.

F.11 SURVEY PLAT [20 NMAC 4.1.500/40 CFR 264.116]

Sandia/DOE plan to clean close all Units at SNL/NM. Because all RCRA-regulated waste will be removed from the Units and the Units will be decontaminated at closure, a survey plat is not required.

REFERENCES

DOE, see U.S. Department of Energy

EPA, see U.S. Environmental Protection Agency.

NAAG, see National Association of Attorneys General

NMED, see New Mexico Environment Department.

National Association of Attorneys General, 1998, “Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*”, dated September 1998.

New Mexico Environment Department, 1997, Letter from NMED (Robert S. Dinwiddie) to DOE (Michael Zamorski), entitled “Request for Supplemental Information: Background Concentrations Report, SNL/KAFB,” dated September 24, 1997.

U.S. Department of Energy (DOE), 2000, “Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring”, dated November 29, 2000.

U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” *SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C.

This page intentionally left blank.

Sandia National Laboratories/New Mexico Hazardous Waste Management Facility Part B Permit Renewal Request

Module I

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... HWMF-iii
LIST OF FIGURES ..... HWMF-iv
ACRONYMS AND ABBREVIATIONS ..... HWMF-v
1.0 GENERAL UNIT OPERATIONS HWMF-2
1.1 Designated Waste Management Areas HWMF-2
1.1.1 Hazardous Waste Packaging Building (Building 959) HWMF-2
1.1.2 Hazardous Waste Storage Building (Building 958) HWMF-3
1.1.3 Modular Storage Buildings (958B and 958C) HWMF-4
1.2 Unit Operations HWMF-5
1.2.1 Operation of Containment Systems HWMF-5
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes HWMF-5
1.2.3 Preparedness and Prevention HWMF-6
1.2.3.1 Required Equipment HWMF-6
1.2.3.2 Testing and Maintenance of Equipment HWMF-7
1.2.3.3 Access to Communications or Alarm Systems HWMF-7
1.2.4 Hazards Prevention HWMF-7
1.2.4.1 Preventing Hazards in Unloading HWMF-7
1.2.4.2 Preventing Runoff or Flooding HWMF-8
1.2.4.3 Preventing Contamination of Water Supplies HWMF-8
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages HWMF-8
1.2.4.5 Preventing Undue Exposure HWMF-8
1.2.4.6 Preventing Releases to the Atmosphere HWMF-9
1.3 Container Storage Practices HWMF-9
1.3.1 Container Types and Labeling HWMF-10
1.3.2 Container Handling HWMF-10
1.3.2.1 Condition of Containers HWMF-10
1.3.2.2 Aisle Space and Storage Configuration HWMF-10
1.3.2.3 Compatibility of Waste with Containers HWMF-10
1.3.2.4 Presence of Liquids in Containers HWMF-11
2.0 UNIT DESCRIPTION and information HWMF-12
2.1 Security Procedures and Equipment HWMF-12
2.1.1 Barriers and Means to Control Entry HWMF-12
2.1.2 Warning Signs HWMF-13
2.2 Traffic Pattern, Volume, and Controls HWMF-13
2.2.1 Traffic Patterns HWMF-13
2.2.2 Traffic Volumes HWMF-13
2.2.3 Traffic Control Signals HWMF-13
2.3 Unit Location Information HWMF-14
2.3.1 Seismic Standard HWMF-14
2.3.2 Floodplain Standard HWMF-14
2.4 Topographic Maps HWMF-14
2.5 Groundwater Monitoring HWMF-15
3.0 WASTE ANALYSIS PLAN HWMF-16

TABLE OF CONTENTS (Concluded)

4.0 INSPECTION PLAN HWMF-17
5.0 PERSONNEL TRAINING HWMF-20
6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE HWMF-21
7.0 CLOSURE PLAN HWMF-27
7.1 Unit Description HWMF-27
7.2 Estimate of Maximum Waste in Storage HWMF-27
7.3 Closure Conditions HWMF-28
7.4 Closure Activities and Schedule HWMF-28
7.4.1 Closure Activities HWMF-29
7.4.2 Closure Schedule HWMF-29
7.5 Sampling and Analysis Plan HWMF-29
7.5.1 Sampling and Analysis Scope HWMF-29
7.5.2 Sampling Methodology HWMF-30
7.5.2.1 Sample Locations HWMF-30
7.5.2.2 Sample Collection HWMF-30
7.5.2.3 Sampling Equipment HWMF-30
7.5.2.4 Sample Equipment Decontamination HWMF-32
7.5.2.5 Sample Identification HWMF-33
7.5.2.6 Sample Preservation and Holding Time HWMF-33
7.5.3 Demonstration of Clean Closure HWMF-33
7.5.4 Quality Control HWMF-33
7.5.5 Data Management and Reporting HWMF-34
7.6 Decontamination and Verification Procedures HWMF-34
8.0 TREATMENT PLAN HWMF-35
9.0 REFERENCES HWMF-36

LIST OF TABLES

Table No.	Title
1	Secondary Containment Capacity for Building 958
2	Fire Suppression Systems at the Hazardous Waste Management Facility
3	Hazardous Waste Management Facility Inspection Criteria and Frequency
4	Hazardous Waste Management Facility, Emergency Equipment and Locations
5	Hazardous Waste Management Facility, Emergency Coordinator List
6	Hazardous Waste Management Facility, Summary of Random Sampling Program
7	Hazardous Waste Management Facility, Example Random Sample Locations

LIST OF FIGURES

Figure No.	Title
1	Location of the Hazardous Waste Management Facility at Sandia National Laboratories/New Mexico
2	Hazardous Waste Management Facility, Resource Conservation and Recovery Act-Regulated Waste Management Areas
3	Hazardous Waste Packaging Building (Building 959), Floor Plan
4	Hazardous Waste Storage Building (Building 958), Floor Plan
5	Hazardous Waste Management Facility, Traffic Routes and Controls
6	Topographic Map, Hazardous Waste Management Facility
7	Hazardous Waste Management Facility, Access Control Features
8	Hazardous Waste Management Facility, Drainage Control Features
9	Hazardous Waste Management Facility, Evacuation Routes
10	Hazardous Waste Management Facility, Emergency Response and Access Information
11	Hazardous Waste Storage Building (Building 958), Closure Grids
12	Hazardous Waste Packaging Building (Building 959), Closure Grids
13	Modular Storage Buildings (Buildings 958B, 958C), Closure Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
ft	foot/feet
ft^2	square foot/feet
HWMF	Hazardous Waste Management Facility
HSWA	Hazardous and Solid Waste Amendments
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	Solid Waste Management Unit
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO HAZARDOUS WASTE MANAGEMENT FACILITY PART B PERMIT RENEWAL REQUEST

This Sandia National Laboratories/New Mexico (SNL/NM) Hazardous Waste Management Facility (HWMF) Part B Permit Renewal Request is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage operations at the HWMF. 20 NMAC 4.1.500 and .900, adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application" hereinafter referred to as the General Part B. Together, information provided in this module, in the General Part B, and in the appendices to the General Part B meet the applicable requirements for the HWMF that are specified in 20 NMAC 4.1.500/40 CFR 264 [10-1-03], and 20 NMAC 4.1.900/40 CFR 270 [10-1-03].

Sandia/DOE also prepared the "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0" (SNL/NM, 2004), hereinafter referred to as the General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the General Part B and Unit-specific Part B modules, including this HWMF Part B Permit Renewal Request.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Hazardous Waste Management Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The HWMF occupies 1.35 acres on DOE property between TA-I and TA-II. It is a fenced compound with several buildings and waste management areas (WMAs). Operations include storage of RCRA-regulated wastes in containers and repackaging the wastes into suitable containers for shipment to off-site treatment and/or disposal facilities. Sandia/DOE currently operate the HWMF in accordance with the terms of NMED Permit NM5890110518-1, issued August 6, 1992 (NMED, 1992), and its subsequent modifications. Sandia/DOE manage all of the wastes listed in the Part A included in Permit NM5890110518-1.

All of the RCRA-regulated wastes listed in the General Part A may be managed at the HWMF upon issuance of the permit that is the subject of this Part B renewal request.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the HWMF WMAs and specific Unit waste management operations. The information in this section complements the information provided in Section 1.0 of the General Part B.

Specific information in this section regarding Unit operations includes: containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the General Part B, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [10-1-03].

1.1 Designated Waste Management Areas

The location of the HWMF at SNL/NM is shown on Figure 1. The HWMF has three designated WMAs, shown on Figure 2:

- The Hazardous Waste Packaging Building (Building 959),
- The Hazardous Waste Storage Building (Building 958), and
- Two modular storage buildings.

The following sections provide descriptions of the storage structure, location, capacity, and secondary containment of each WMA.

1.1.1 Hazardous Waste Packaging Building (Building 959)

In the Hazardous Waste Packaging Building, lab packs are prepared by placing small containers into larger containers filled with absorbent material, and other wastes are repackaged into containers for shipment to off-site treatment, storage, and disposal facilities (TSDFs).

The Hazardous Waste Packaging Building is the easternmost WMA at the HWMF and is an 1,800-square-foot (ft^2) precast concrete building with an eave height of 12 feet (ft) (Figures 2 and 3). Eight waste-holding cells with half-height concrete masonry unit walls and a waste packaging area are located in the building. The packaging area contains a fume hood and flexible ventilation hoses attached to a local negative-pressure ventilation system that exhausts to the exterior of the building.

All the cells and the packaging area have recessed floors that are constructed of reinforced concrete and are covered with metal grating. Waste containers are placed on shelves over the metal grating over the recessed secondary containment areas. The load-bearing capacities of the metal grating and the reinforced concrete floor are 450 and 2,000 pounds per ft^2,

respectively. The entire floor of the building and the bottom seven inches of wall surface in each recessed area are covered with an epoxy-based chemical-resistant coating. The coating forms a continuous protective barrier over the concrete and protects the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

The individual shelves are covered with removable chemical-resistant grating, and they have edges to hold the containers in place. The shelves are not designed to provide secondary containment. Secondary containment is provided by the recessed areas in each holding cell. The recessed area in each cell is 5 feet by 4.5 feet and 7 inches deep, with a capacity of 98 gallons. The recessed area under the packaging area is 5 feet by 12 feet and 7 inches deep, with a capacity of 261 gallons. For each of these recessed areas, Sandia/DOE consider only part of the available capacity: the capacity used in each holding cell is 71 gallons, and the capacity used under the packaging area is 191 gallons.

Based on the secondary containment capacity used by Sandia/DOE (10% of the stored volume or the volume of the largest container), each of the eight holding cells in the Hazardous Waste Packaging Building can hold a maximum of 13 55-gallon drums, or an equivalent volume. The packaging area can hold a maximum of 34 55-gallon drums, or an equivalent volume. The stacking configuration of waste containers will not exceed the load-bearing capacity of the reinforced concrete or metal grating. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.1.2 Hazardous Waste Storage Building (Building 958)

The Hazardous Waste Storage Building (Building 958) is located west of the Hazardous Waste Packaging Building (Figure 2). The Hazardous Waste Storage Building is a 3,250-ft^2 precast concrete building with an eave height of 14 ft. In the Hazardous Waste Storage Building, eight separate and recessed waste storage compartments for segregation of waste groups are contained in the building (Figure 4). The floors of Cells 1, 2, 3, 4, 6, 7, and 8 are constructed of reinforced concrete and metal grating. The floor of Cell 5 is constructed of reinforced concrete. The entire floor (all cells and walkway) is coated with an epoxy-based chemical-resistant coating. The coating protects the concrete from the effects of solvents and corrosive chemicals that could be released on the floor in the event of a spill. Waste containers are placed on metal grating over the secondary containment area, or on pallets on the reinforced concrete floor in Cell 5. The load-bearing capacity of the metal grating and reinforced concrete are 450 and 2,000 pounds per ft^2, respectively. The storage compartments vary in size, secondary-containment capacity, and waste-container capacity.

The secondary containment in Bays 1, 2, 3, 4, 6, 7, and 8 is provided by the recessed areas under the grating. The secondary containment capacity in Bay 5 is provided by the volume of the entire recessed area. For example, the recessed area in Bay 1 is 11.75 feet by 14.67 feet by 5 inches deep, with a capacity of 542 gallons. The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus, the storage capacity in Bay 1 is 5420 gallons, 98 55-gallon drums, or an equivalent volume. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

Based on the secondary containment capacity, the storage compartments are limited to the following maximum storage capacity of 55-gallon drums, or equivalent volume, as listed in Table 1.

Table 1
Secondary Containment Capacity for Building 958

Bay No.	Secondary Containment Capacity, Gallons	Maximum Number of 55-Gallon Drums Stored[a]
1	542	98
2	434	79
3	434	79
4	434	79
5	4,136	518[b]
6	434	79
7	434	79
8	434	79

[a] Actual limit will be various containers with total volume equivalent to stated number of 55-gallon drums

[b] A portion of the secondary containment capacity is taken up by pallets, and the aisle area is not included in the calculations.

The stacking configuration of waste containers will not exceed the load-bearing capacity of the reinforced concrete floor or the metal grating.

1.1.3 Modular Storage Buildings (958B and 958C)

The modular storage buildings are located west of Building 958 (Figure 2) and are used for storage of spontaneously ignitable and reactive wastes, including, but not limited to, lithium batteries, gas cylinders, and flammable solids.

The exterior dimensions of each modular storage building are 22 ft long, 8 ft wide, and 8 ft high. The buildings are constructed of welded 10- and 12-gauge steel supported by structural steel sections. Each building has three doors, each with a three-point locking system to provide access and security. Each has a 6-inch-deep integral spill containment reservoir under the entire building; the containment capacity is 500 gallons. The secondary-containment subfloor is constructed of continuously welded 10-gauge steel, which is epoxy-coated to resist chemical attack; the coating is compatible with reactive wastes. The floors are 1-inch-thick epoxy-coated, fire resistant plywood. The load-bearing capacity of the floor for each structure is 250 pounds per square foot. The inside walls and ceiling are also coated with chemical-resistant epoxy. Each building rests on structural supports that elevate it and allow visual checks of the underside of the spill containment reservoir if there is evidence of deterioration on the interior surfaces. The secondary containment capacity is 10% of the stored volume or the contents of the largest container; thus, the storage capacity is 5000 gal. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

1.2 Unit Operations

The HWMF WMAs are used to store any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the General Part A.

Information regarding operations requiring a permit at all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Unit personnel begin taking action to evaluate and remove accumulated liquids in each secondary containment area in the HWMF upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

Containers are inspected for integrity when the wastes arrive at the HWMF, before they are placed on the shelves in the holding cells in Building 959. Containers in poor condition are not placed on the shelves; the containers may be overpacked or the RCRA-regulated wastes may be transferred to containers in good condition, as described in Section 1.2.2.1 of the General Part B. The shelves are typically lined with absorbent pads under removable grating. Containers are placed on the grating on the shelves, and are inspected regularly as noted in Section 4.0 of this module and in Appendix C of the General Part B. Released materials are contained in the absorbent pads and are cleaned up as described in Section 1.1.1 of the General Part B. These practices serve to protect the containers on the shelves from contact with liquids.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[c] and [d]; 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the HWMF. Sources of ignition that may be present at the HWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. The general precautions and practices employed by Unit personnel are described in Section 1.1.2 of the General Part B. Additional HWMF-specific features, potential ignition and reaction sources, precautions, and practices include:

- The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. They are equipped with a dry chemical fire suppression system to assure that water-reactive wastes will not be exposed to water during fire emergencies.

- Building 959 is used for open container operations (e.g., bulking, sampling) that may involve ignitable or reactive wastes. It is equipped with an intrinsically safe (spark proof) electrical system, including lighting and receptacles.

- Spontaneously ignitable and water-reactive wastes are segregated from other wastes and stored in the modular storage buildings. The modular storage buildings have exterior signs indicating the presence of ignitable and reactive wastes.

- Spontaneously ignitable and water-reactive wastes may temporarily be managed in Building 959 after receipt and during repackaging activities. Individual containers are labeled as described in Section 1.2.1 of the General Part B, and they are kept apart from other wastes.

- Containers of wastes (including ignitables and reactives) are labeled and segregated in different holding cells in Building 959 according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. Each cell is marked with a sign noting the hazard class(es) of wastes inside. Containers in Building 958 (including ignitables and reactives) are labeled. They are segregated into different bays according to general DOT hazard classes in 49 CFR 172 and 20 NMAC4.1.500/40 CFR 264 Appendix V as appropriate. Each bay is marked with a sign noting the hazard class(es) of wastes inside. The holding cells and bays are separated from each other by concrete walls and independent containment systems.

- Forklifts are not used for waste movement in Building 959 to minimize potential sources of ignition in the building.

- Unit personnel use the process described in Section 1.1.2 to ground containers during transfer of flammable liquids between containers.

- Wastes are mixed together on a very limited basis during the repackaging operations at the Unit. Ignitable and reactive wastes are only mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., NIOSH Pocket Guide to Chemical Hazards or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarms systems at the HWMF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

General information about fire hydrants at each Unit is provided in Section 1.1.3.1 of the General Part B. The fire hydrant at the HWMF is shown in Figure 10.

The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. All buildings at the HWMF are equipped with automatic fire suppression systems, which are summarized in Table 2.

Table 2
Fire Suppression Systems at the Hazardous Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
959	13, 30	Special	Automatic sprinkler, wet pipe	GB/FS
958	13, 30	Special	Automatic sprinkler, dry pipe	GB/FS
958B	17	N/A	Dry chemical	
958C	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb or fusible solder type, typically designed to open at temperatures of 155ºF or higher.

Information on other required equipment located at the HWMF is provided in Section 6.0 and Table 4 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the HWMF is provided in Section 1.1.3.2 and in Appendix C of the General Part B, and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the HWMF is provided in Section 1.1.3.3 of the General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the HWMF to prevent hazards. Additional information applicable to the HWMF and all other Units at SNL/NM is included in Section 1.1.4 of the General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

HWMF personnel employ the practices described in Section 1.1.4.1 of the General Part B to prevent hazards in unloading. Loading and unloading activities typically take place on the south

side of buildings 958 and 959 (Figure 7). The surface is level, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Containers are typically shrink-wrapped to hold them together on a pallet before being loaded onto vehicles by a forklift for off-site shipment. Containers are typically transported within the Unit with drum dollies or pallet jacks.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land around the HWMF is generally level, sloping gently toward the south and west. The paved areas of the HWMF are higher than the surrounding land on all sides, preventing sheet-flow run-on of surface water from surrounding areas. The western edge of the paved area is also surrounded by a 6-inch high asphalt curb, further preventing runon and runoff from HWMF WMAs.

Within the HWMF, the paved areas are sloped toward a 74,800-gallon catchment pond located at the northwest corner of the Unit. During normal operations, the catchment pond collects only storm water. The catchment pond does not provide secondary containment for RCRA-regulated waste.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated wastes at the HWMF will affect water supplies, as described in Section 1.1.4.3 of the General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. The HWMF is equipped with battery-operated lights that will automatically turn on in the event of a power failure. A permanent power transformer can provide emergency power from the SNL/NM emergency power network.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

HWMF personnel employ the practices described in Section 1.1.4.5 of the General Part B to prevent undue exposure. In addition, a fume hood and flexible ventilation hoses are available in Building 959 and can be used if there is a need to open a container of vapor-generating RCRA-regulated waste to sample the waste or transfer it to another container.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

HWMF personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere during storage.

Subpart AA

HWMF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03]. HWMF repackaging operations sometimes involve a pump used in light organic service. It is used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [10-1-03]. The equipment list will be noted in the HWMF records, and equipment use will also be noted in the records.

Subpart CC

HWMF personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere in accordance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the Unit.

Section B.5.3 in Appendix B of the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [10-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR, Subpart I)

The HWMF is permitted for container storage of RCRA-regulated wastes in accordance with the conditions of “Sandia National Laboratories/New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-1” (NMED, 1992). Container storage practices applicable to the HWMF are presented in the following sections.

1.3.1 Container Types and Labeling

HWMF personnel use the containers types and labeling practices described in Section 1.2.1 of the General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

HWMF personnel employ the container handling practices described in Section 1.2.2 of the General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the HWMF is maintained as indicated in Section 1.2.2.1 of the General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

HWMF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the General Part B. Aisle width is typically 2.5 feet in all buildings. This is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked in Building 958 are stored on pallets, and are not stacked more than two pallets high. Smaller containers may be stacked on a single pallet. Box-shaped containers may be stacked two high without pallets. Containers may also be stored directly on the grating or on pallets on the floor.

In Building 959, containers are stored in the holding cells: smaller containers are stored on the shelves, and larger containers are stored directly on the grating. Containers are typically not stacked in Building 959; however, containers on the floor grating may be stacked two high.

Fifty-five-gallon drums stored in the modular buildings (Buildings 958B and 958C) are not stacked. Smaller containers may be stacked.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

HWMF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

All container storage areas at the HWMF are equipped with secondary containment. Therefore, Unit personnel do not verify whether containers contain free liquids before storage.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270) [10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [10-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Section 2.0 and Appendix A of the General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the HWMF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The HWMF is located on DOE property between TA-I and TA-II (Figure 1). The Unit is surrounded by an 8-ft high chain-link fence topped with barbed wire. A single entrance gate is located on the east side of the HWMF. The gate is locked during non-operational hours. An emergency exit gate is located on the west side of the Unit, as shown in Figures 6 and 7. This gate is locked at all times and can only be opened from the inside by pressing on the handle. All buildings are also kept locked during non-operational hours. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the HWMF gates during non-operational hours.

During work hours, Unit signs instruct personnel and visitors to report to Office Trailer #1 for site entry privileges and instructions. Resident personnel have Sandia-issued badges.

Nonresidents are escorted while on site. These procedures limit access to the HWMF WMAs, in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fences surrounding the HWMF and the entrance to the HWMF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the HWMF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the HWMF include Hardin Boulevard (formerly O Street), Pennsylvania Avenue, Wyoming Boulevard, Eubank Boulevard, and 9th, 14th, and P Streets as shown in Figures A-4 and A-5 in Appendix A of the General Part B.

Waste transport vehicles enter the HWMF from 14th Street (Figure 5). Within the HWMF, waste is transported on paved surfaces.

2.2.2 Traffic Volumes

Traffic volumes on Hardin Boulevard, Wyoming Boulevard, and Eubank Boulevard are generally light to moderate; traffic volumes on Pennsylvania Avenue and 9th, 14th, and P Streets are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Approximately 10 to 30 vehicles per week travel into and out of the HWMF. These include flatbed trucks and trailers carrying supplies, RCRA-regulated wastes from initial generators, and RCRA-regulated wastes to off-site TSDFs.

2.2.3 Traffic Control Signals

Traffic on the access road is controlled by a stop sign at each end of the road: one at the intersection with 14th Street, and a stop sign and speed limit sign posted on the fence adjacent to the HWMF vehicle entrance gate (Figure 5). The speed limit within the HWMF fenced area is 5 miles per hour and no private vehicles are allowed inside the HWMF. Vehicle presence within

the fenced HWMF is limited to work and waste transport vehicles (i.e., no personal vehicles). Therefore, signals or signs are not necessary to control traffic within the HWMF fenced area.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11] [i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the HWMF are not located within 3,000 ft of any fault with Holocene displacements (see Section A.4.2 in Appendix A of the General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the HWMF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [10-1-03]).

- Surface waters, including intermittent streams, near the HWMF are shown on Figure A-2 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [10-1-03]). The area surrounding the HWMF is occupied by other Sandia-controlled operations (industrial land use). As noted in Appendix A, the nearest residential areas are located west of Pennsylvania Avenue, north of Hardin Blvd (west of SNL/NM TA-I), more than one mile away from the HWMF.

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [10-1-03]).

- Legal boundaries of SNL/NM (including the HWMF) are shown on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [10-1-03]).

- Access control features at the HWMF (e.g., fences, gates) are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the HWMF are shown on Figure A-2 in Appendix A of the General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [10-1-03]).

- The location of the HWMF and associated WMAs and structures, loading and unloading areas, roads, and sanitary sewers are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][x] [10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [10-1-03]).

- Locations of the HWMF and HWMF WMAs are shown on Figures 1, 2, and 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the HWMF. As provided for in 20 NMAC 4.1.900/ 40 CFR 270.14(b)(19) [10-1-03], SNL/NM has submitted the maps to NMED at these scales and contour intervals due to the size of the HWMF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The HWMF is not a regulated Unit. There have been no releases of RCRA-regulated waste in the past, nor is the HWMF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, “General Waste Analysis” [10-1-03], waste analysis requirements applicable to all Units, including the HWMF, are addressed in Appendix B of the General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03] require that waste management areas (WMAs) and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated wastes to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the “Site-Wide Inspection Plan”, provided as Appendix C of the General Part B. HWMF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 3, which includes the inspection criteria and frequency. The items listed in the table are inspected in each HWMF WMA.

Automatic fire suppression systems are included in Table 3. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on the requirements of NFPA 25 “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” (NFPA, 2002), as described in Section 1.1.3.2 of the General Part B.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained at the HWMF. Inspection records for previous calendar years are maintained at the HWMF or the SNL/NM Records Center.

Table 3
Hazardous Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 4 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash / safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, and in good condition	Monthly
Self-contained breathing apparatus	Present and in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT **Buildings 958, 959, 958B, and 958C**		
Building / storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Shelves (Building 959 only)	Clean, in good condition, no accumulated leaks or spills	Daily when and where wastes are handled. Weekly otherwise.
Secondary containment	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.

Table 3 (Concluded)
Hazardous Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont) **Buildings 958, 959, 958B, and 958C**		
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Waste transfer pump	Present, operational, and in good condition	Prior to use. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [10-1-03] "Personnel Training."

The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the HWMF.

HWMF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the General Part B.

Training records for HWMF personnel are maintained at the HWMF.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permitted units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [10-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the General Part B. Supplemental HWMF-specific information is included in this section, in Figures 9 and 10, and in Tables 4 and 5 of this module. Current copies of the site-wide contingency plan and this supplemental information are maintained at the HWMF and at the SNL/NM Emergency Operations Center.

The HWMF is located at the curve of 14th and P Streets (approximately 1,000 feet (ft) north of the entrance to Technical Area II) at SNL/NM. The Unit is used to repackage and store RCRA-regulated wastes. The WMAs at the HWMF include Building 958, Building 959, and the two modular storage buildings. The HWMF WMAs are located within a single area surrounded by a fence. All of the wastes listed in the General Part A may be stored at the HWMF.

- Building 959 is an 1,800-square-foot precast concrete building with an eave height of 12 feet. Inside the building are eight waste holding cells, a repackaging area, a restroom, a general use area, an office area, and an area for packing materials. The floor is coated with an epoxy finish. Small containers of wastes (typically less than 55 gallons) are stored in this building. Containers of incompatible wastes are segregated into different holding cells. The containers and contents are repackaged into other containers for shipment to off-site facilities. Up to 7,590 gallons of waste may be stored in this building.

- Building 958 (west of Building 959) is a 3,520-square-foot precast concrete building with an eave height of 14 feet. The building includes eight separate and recessed waste storage compartments for segregation of waste groups according to compatibility. Containers of wastes are stored in this building. Up to 59,950 gallons of waste may be stored in this building.

- Buildings 958B and 958C are modular, relocatable, prefabricated safety storage structures used for the storage of reactive and ignitable wastes. Each structure is constructed of welded 10- and 12-gauge steel with supporting structural steel sections, and each has three doors. The 500-gallon containment reservoirs within each building, the walls, and the ceilings are coated with chemical-resistant epoxy. The reservoirs are lined with polypropylene, which is compatible with reactive wastes. The floors are epoxy-coated, fire-resistant plywood. Up to 5,000 gallons of waste may be stored in each building.

- Storage of reactive wastes, lithium batteries, gas cylinders and flammable solids is restricted to these two buildings except for temporary storage that may occur in Building 959 following acceptance of the waste at the HWMF.

Figure 9 presents the evacuation routes for the HWMF. Figure 10 presents emergency response and access information for the HWMF. Table 4 lists the emergency equipment typically available at the HWMF. Table 5 lists the emergency coordinators for the HWMF.

Current copies of the site-wide contingency plan (Appendix E of the General Part B) and this supplemental information are maintained at the HWMF and at the SNL/NM Emergency Operations Center.

Table 4
Hazardous Waste Management Facility, Emergency Equipment and Locations

Building 958

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower / eyewash	Near south entrance
	Recovery drums and containers	At south entrance
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	At south entrance
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the HWMF
	SCBA	At south entrance
	Miscellaneous personal protective equipment (protective suits, goggles and/or safety glasses, gloves)	At south entrance
Internal Communication and Alarm System	Voice command	
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One each on the exterior and interior walls near north and south personnel doors
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	One on the interior walls near the north and south entrances
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One each on the exterior and interior walls near north and south personnel doors
Fire Extinguishers	Portable (A-B-C)	One at both the north and south entrances
Fire Suppression	Automatic wet-pipe water sprinkler system, with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	One hydrant, location shown in Figure 10

Table 4 (Continued)
Hazardous Waste Management Facility, Emergency Equipment and Locations

Building 959

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower/eyewash	Near south entrance
	Recovery drums and containers	Near south entrance
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Near south entrance
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the HWMF
	SCBA	Near south entrance
	Miscellaneous personal protective equipment (protective suits, goggles and/or safety glasses, gloves)	Near south entrance
	First aid kit	One in the bathroom
Internal Communication and Alarm System	Voice command	
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers).	One each on the exterior and interior walls near each personnel door
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	One in the office
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers).	One each on the exterior and interior walls near each personnel door
Fire Extinguishers	Portable (A-B-C)	One at both the north and south entrances
	Lith-X	One in the general use area One in the office
Fire Suppression	Automatic wet-pipe water sprinkler system, heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	One hydrant, location shown in Figure 10

Table 4 (Concluded)
Hazardous Waste Management Facility, Emergency Equipment and Locations

Modular Storage Buildings (958B and 958C)

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Personal protective equipment Recovery drums and containers Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present) and spill cleanup items	Buildings 958 and 959, equipment storage at the HWMF
Internal Communication and Alarm System	Voice command	
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system).	Buildings 958 and 959
	Audible fire alarms	
External Communication System	Telephones – unlimited employee access	Buildings 958 and 959
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 958 and 959
Fire Suppression	Ansul automatic dry chemical system	Coverage throughout the building

KAFB Kirtland Air Force Base.
SCBA Self-contained breathing apparatus.

Table 5
Hazardous Waste Management Facility, Emergency Coordinator List

November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Lorenz (Richie) Spangler Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-1181 (office) (505) 264-2106 (cellular) (505) 530-2022 (pager)	(505) 898-5225
First Alternate	Brett Cummins Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 844-1346(office) (505) 238-3662(cellular) (505) 540-5362 (pager)	(505) 275-1131
Second Alternate	David Castillo Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-4192 (office) (505) 540-9375 (pager)	(505) 899-1956

One or more of these personnel are routinely available during operating hours (8:00 am to 4:30 pm, Monday through Friday)

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, [10-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site- Wide Closure Plan" in Appendix F of the General Part B. The site-wide plan includes a description of the SNL/NM facility, waste descriptions, closure performance standards, general closure methods, a sampling and analysis plan (SAP), a general closure schedule, procedures for amendment of the plan, closure certification and letter, survey plat, and post-closure requirements. Unit-specific information for closure of the HWMF is included in this section.

7.1 Unit Description

The HWMF is located at the curve of 14th and P Streets (approximately 1,000 feet north of the entrance to Technical Area II) at SNL/NM and is used to repackage and store RCRA-regulated wastes. The WMAs at the HWMF include Building 958 (Figure 12), Building 959 (Figure 11), and two modular storage buildings (Buildings 958B and 958C, Figure 13). The HWMF WMAs are located within a single area surrounded by a fence.

- Building 959 is an 1,800-square-foot precast concrete building that contains eight separate and recessed waste holding cells and a repackaging area. The floor is coated with an epoxy finish. Small containers of wastes (typically less than 55 gallons) are stored in this building. The repackaging area includes a fume hood and local negative-pressure ventilation systems for use when opening containers of vapor-producing wastes to repackage them.

- Building 958 (west of Building 959) is a 3,520-square-foot precast concrete building that includes eight separate and recessed waste storage compartments for segregation of waste according to compatibility groups. The floor is covered with a chemical-resistant epoxy finish. Containers of wastes are stored in this building.

- Buildings 958B and 958C are modular, prefabricated safety storage structures used for container storage of reactive and ignitable wastes. Each structure is constructed of welded 10- and 12-gauge steel with supporting structural steel sections, and a 500-gallon containment reservoir. The inside surfaces are coated with chemical-resistant epoxy finish.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum volume of RCRA-regulated waste in storage at any time at the HWMF is estimated at 77,540 gallons of liquids and/or solids (including lab packs that contain substantial quantities of absorbent). This is the maximum volume of RCRA-regulated wastes that could be removed from the WMAs as part of closure activities. The maximum total waste volume is broken down as follows:

- Building 959: 7,590 gallons
- Building 958: 59,950 gallons
- Building 958B: 5,000 gallons
- Building 958C: 5,000 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan, partial closure activities specified in this plan assume the following conditions were met during the operational life of the HWMF:

- Waste handling activities that involved opening containers of RCRA-regulated wastes were confined to the interiors of HWMF WMAs. If contamination occurred, it would have been confined to these areas.

- Repackaging and bulking activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during repackaging or bulking activities in Building 959, they would only be present in the first 15 feet of the exhaust system.

- The WMAs are physically separate, therefore each WMA is considered independently of other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- There has been no evidence of releases onto the asphalt pavement within the fence.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the WMAs where wastes were managed.

- The interior floors of WMAs in each building were maintained to retain their integrity by following established maintenance and inspection procedures, breaches of protective coatings did not occur, and small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the HWMF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- Items of equipment within the HWMF repackaging area will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that are most likely to be removed include local exhaust systems (the first fifteen feet), filters, and portable equipment. Items that are most likely to be decontaminated include the interior of the fume hood.

- Removable items within the storage areas will also be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that may be removed include shelves (Building 959) and floor grating.

- The modular storage buildings (958B and 958C) will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The floors of each WMA will be decontaminated by sweeping and washing as described in Section F.5, except as noted in this section.

7.4.2 Closure Schedule

Section F.7 of the site-wide closure plan provides a timeline for closure activities applicable to all permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the HWMF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the HWMF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide closure plan presents general sample collection equipment and techniques applicable to all Units at the SNL/NM facility. This Unit-specific SAP describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the HWMF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [10-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples; required analytical constituents; closure criteria; QA and quality control [QC] procedures) regarding RCRA closure of the HWMF.

7.5.1 Sampling and Analysis Scope

This SAP presents procedures for acquisition, analyses, and evaluation of samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and, where appropriate, secondary containment surfaces of the four WMAs at the HWMF (Buildings 958, 959, 958B, and 958C). All of the samples will be analyzed to determine concentrations of a set of indicator parameters selected from the range of hazardous waste

constituents in the RCRA-regulated wastes managed in the Unit. These indicator parameters and the applicable criteria for clean closure are identified in Tables 6 and 7, and the rationale for their selection is presented in Section 7.5.3.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

As indicated in Table 7, two samples of used wash water and two samples of used decontamination rinse water will be collected from each area shown on Figures 11, 12, and 13. Used wash water will be contained in the bays, in temporary berms, or other containment devices; sampled; and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA shown on Figures 11, 12, and 13 prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 6.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 6 and 7.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.

Table 6
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA (representative of material removed from entire floor surface)	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	5.6 ppm 200 ppm <1 ppm 17.3 ppm 39 ppm <0.25 ppm <1 ppm <1 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Same as above	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the HWMF due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 7
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Building 958	A-H	4[d]	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	I-J	4	Same as above	Same as above
Building 959	A_1-G, K	4[d]	Same as above	Same as above
	H-J	4	Same as above	Same as above
Building 958B	A	4[d]	Same as above	Same as above
Building 958C	A	4[d]	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the HWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

[d] Secondary containment surfaces (bottom and sides) will be washed up to the secondary containment level.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will not be required for the sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, secondary containment,), the grid identifier, the sample type (e.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-958-A-FL-RINSE-01 would indicate the filtered rinse water sample taken from water used to rinse the floor of Grid A in Building 958.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., the recommended maximum holding time for metals analysis is 180 days from sample collection until extraction).

7.5.3 Demonstration of Clean Closure

Hazardous waste toxicity characteristic metals have been selected for use as indicator parameters to demonstrate clean closure at the HWMF, as these constituents are present in many of the wastes commonly stored in the Unit. Other wastes stored in the HWMF typically are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters is of limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor or secondary containment surfaces even if these constituents had been released in the past. If residual contamination is present on the floor or secondary containment surfaces of the HWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, samples will be analyzed for hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B, or an equivalent method.

Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the concentrations of indicator parameters are substantially elevated, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.1 of the site-wide closure plan.

7.5.4 Quality Control

QC for sampling and analysis at the HWMF will be implemented as described in Section F.6 of the site-wide closure plan.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.

7.6 Decontamination and Verification Procedures

Section F.5.2 of the site-wide closure plan presents general decontamination and verification procedures applicable to all Units at the SNL/NM facility. Prior to closure, this Unit-specific plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific plan will be submitted to NMED for approval prior to initiation of closure activities at the HWMF.

8.0 TREATMENT PLAN

Sandia /DOE do not perform treatment of RCRA-regulated wastes requiring a permit at the HWMF.

9.0 REFERENCES

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2000, "Flammable and Combustible Liquids Code," NFPA 30, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, " Standard for Dry Chemical Extinguishing Systems," NFPA 17, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 2004, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 7.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

Sandia National Laboratories/New Mexico
Thermal Treatment Facility
Part B Permit Renewal Request

Module II

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... TTF-iii
LIST OF FIGURES ..... TTF-iv
ACRONYMS AND ABBREVIATIONS ..... TTF-v
1.0 GENERAL UNIT OPERATIONS TTF-2
1.1 Designated Waste Management Area TTF-2
1.2 Unit Operations TTF-3
1.2.1 Operation of Containment Systems TTF-3
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes TTF-4
1.2.2.1 General Precautions for Handling Reactive Waste TTF-4
1.2.2.2 Engineering and Operating Precautions to Prevent Reactions TTF-4
1.2.3 Preparedness and Prevention TTF-5
1.2.3.1 Required Equipment TTF-5
1.2.3.2 Testing and Maintenance of Equipment TTF-5
1.2.3.3 Access to Communications or Alarm Systems TTF-6
1.2.4 Hazards Prevention TTF-6
1.2.4.1 Preventing Hazards in Unloading TTF-6
1.2.4.2 Preventing Runoff or Flooding TTF-6
1.2.4.3 Preventing Contamination of Water Supplies TTF-7
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages TTF-7
1.2.4.5 Preventing Undue Exposure TTF-8
1.2.4.6 Preventing Releases to the Atmosphere TTF-9
1.3 Container Storage Practices TTF-9
1.4 Treatment Operations TTF-9
2.0 UNIT DESCRIPTION and information TTF-10
2.1 Security Procedures and Equipment TTF-10
2.1.1 Barriers and Means to Control Entry TTF-10
2.1.2 Warning Signs TTF-11
2.2 Traffic Pattern, Volume, and Controls TTF-11
2.2.1 Traffic Patterns TTF-11
2.2.2 Traffic Volumes TTF-12
2.2.3 Traffic Control Signals TTF-12
2.3 Unit Location Information TTF-12
2.3.1 Seismic Standard TTF-12
2.3.2 Floodplain Standard TTF-12
2.4 Topographic Maps TTF-13
2.5 Groundwater Monitoring TTF-14
2.6 Environmental Setting TTF-14
3.0 WASTE ANALYSIS PLAN TTF-16
4.0 INSPECTION plan TTF-17
5.0 PERSONNEL TRAINING TTF-20
6.0 CONTINGENCY PLAN and emergency response TTF-22
7.0 CLOSURE PLAN TTF-25
7.1 Unit Description TTF-25
7.2 Estimate of Maximum Waste Inventory TTF-25

TABLE OF CONTENTS (Concluded)

7.3 Closure Conditions TTF-25
7.4 Closure Activities and Schedule TTF-26
7.4.1 Closure Activities TTF-26
7.4.2 Closure Schedule TTF-27
7.5 Sampling and Analysis Plan TTF-27
7.5.1 Sampling and Analysis Scope TTF-27
7.5.2 Sampling Methodology TTF-27
7.5.2.1 Sample Locations TTF-27
7.5.2.2 Sample Collection TTF-28
7.5.2.3 Sampling Equipment TTF-28
7.5.2.4 Sample Equipment Decontamination TTF-29
7.5.2.5 Sample Identification TTF-29
7.5.2.6 Sample Preservation and Holding Time TTF-29
7.5.3 Demonstration of Clean Closure TTF-29
7.5.4 Quality Control TTF-30
7.5.5 Data Management and Reporting TTF-30
7.6 Characterization Procedures TTF-30
7.7 Contingent Post-Closure Care TTF-30
8.0 TREATMENT PLAN TTF-32
8.1 Treatment Operations TTF-32
8.1.1 Waste Quantities TTF-32
8.1.2 Operations TTF-33
8.1.3 Operating Conditions TTF-34
8.2 Preventing Releases to the Atmosphere TTF-34
8.2.1 Subpart AA TTF-34
8.2.2 Subpart BB TTF-35
8.2.3 Subpart CC TTF-35
8.3 Treatment Effectiveness TTF-35
9.0 Environmental Performance Standards for the Miscellaneous Unit TTF-36
9.1 Characteristics of the Waste and the Unit TTF-36
9.1.1 Waste Characteristics TTF-36
9.1.2 Unit Features TTF-37
9.2 Potential for Deposition or Migration of Wastes or Waste Constituents TTF-39
9.3 Potential Risks to Human Health TTF-40
9.3.1 Receptors TTF-40
9.3.2 Methodology TTF-41
9.3.3 Results TTF-42
9.4 Potential Damage to Animals, Vegetation, and Physical Structures TTF-43
9.4.1 Ecological Screening Assessment TTF-43
9.4.2 Survey Description TTF-44
9.4.3 Receptors Found at SNL/NM TTF-45
9.4.4 Sensitive Species Found at TA-III TTF-46
9.5 Monitoring TTF-47
10.0 REFERENCES TTF-48

LIST OF TABLES

Table No.	Title
1	Thermal Treatment Facility Inspection Criteria and Frequency
2	Thermal Treatment Facility Resource Conservation and Recovery Act-Regulated Waste Management Unit Training Content
3	Thermal Treatment Facility, Emergency Equipment
4	Thermal Treatment Facility, Emergency Coordinator List
5	Estimated Maximum Quantities of Constituents in SASN Wastes
6	Summary of Fate and Transport Mechanism at the TTF
7	Full-Time Occupants of Buildings Near TTF in TA-III at SNL/NM
8	Results of the Human Health Risk Screening Analysis for the TTF

LIST OF FIGURES

Figure No.	Title
1	Location of the Thermal Treatment Facility at Sandia National Laboratories/New Mexico
2	Thermal Treatment Facility, Resource Conservation and Recovery Act-Regulated Waste Management Area
3	Thermal Treatment Facility (TTF)—Plan View
4	Thermal Treatment Facility (TTF)—Section View
5	Thermal Treatment Facility, Traffic Routes and Controls
6	Topographic Map, Thermal Treatment Facility
7	Thermal Treatment Facility, Access Control Features
8	Thermal Treatment Facility, Drainage Control Features
9	Thermal Treatment Facility, Evacuation Routes and Emergency Response and Access Information
10	Thermal Treatment Facility, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AAQS	Ambient Air Quality Standards
A/BCAQCB	Albuquerque/Bernalillo County Air Quality Control Board
COPC	chemicals of potential concern
DOE	U.S. Department of Energy
EA	environmental assessment
ER	Environmental Restoration
ft	foot/feet
HQ	hazard quotient
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
mi	mile
mg/kg	milligram per kilogram
$\mu g/m^3$	microgram(s) per cubic meter
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMFRCD	New Mexico Forestry and Resource Conservation District
QA/QC	quality assurance/quality control
PETN	Pentaerythritol tetranitrate
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan

ACRONYMS AND ABBREVIATIONS (Concluded)

Sandia	Sandia Corporation
SASN	silver acetylide/silver nitrate
SNL/NM	Sandia National Laboratories/New Mexico
SSL	soil screening level
SWMU	solid waste management unit
T and E	threatened and endangered
TA	Technical Area
TSDF	treatment, storage, and disposal facility
TTF	Thermal Treatment Facility
Unit	RCRA-regulated waste management unit
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WMA	waste management area

SANDIA NATIONAL LABORATORIES/NEW MEXICO THERMAL TREATMENT FACILITY PART B PERMIT RENEWAL REQUEST

This Sandia National Laboratories/New Mexico (SNL/NM) Thermal Treatment Facility (TTF) Part B Permit Renewal Request is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste treatment operations at the TTF. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the “Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application”, hereinafter referred to as the SNL/NM General Part B. Together, information provided in this module, in the SNL/NM General Part B, and in appendices to the General Part B meet the applicable requirements for the TTF that are specified in 20 NMAC 4.1.500/40 CFR 264 [10-1-03], and 20 NMAC 4.1.900/40 CFR 270 [10-1-03].

Sandia/DOE also prepared the “Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0” (SNL/NM, 2004a), hereinafter referred to as SNL/NM General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the SNL/NM General Part B and Unit-specific Part B modules, including this TTF Part B Permit Renewal Request.

In the SNL/NM General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Thermal Treatment Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The TTF occupies 196 square feet south of Building 6715 in Technical Area (TA)-III. It is a thermal treatment unit surrounded by an earthen berm and a fence. The entire area within the fence is 8140 square feet. It is used for treatment of explosive waste exhibiting the hazardous waste characteristic of reactivity (D003) generated during operations in Building 6715 (adjacent to the Unit). Sandia/DOE currently operate the TTF in accordance with the terms of NMED Permit NM5890110518-2, issued November 4, 1994 (NMED, 1994), and its subsequent modifications. Sandia/DOE manage all of the wastes listed in the Part A included in Permit NM5890110518-2.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the TTF waste management area (WMA) and TTF operations. The information in this section complements the information provided in Section 1.0 of the SNL/NM General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; and hazards prevention. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the SNL/NM General Part B, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts X, AA, BB, and CC [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.23 [10-1-03].

The TTF is used to treat specific and well-defined explosive (D003) wastes generated at a test facility in Building 6715. The wastes also meet the definition of ignitable waste (D001), and may bear EPA Hazardous Waste Numbers D011 and F003, depending on the presence of silver and spent solvents. Other constituents are also present, as discussed in Sections 8.0 and 9.0. Explosive silver acetylide/silver nitrate (SASN) slurry is formulated from raw ingredients as needed for tests. SASN is present in the solid and liquid wastes treated at the TTF. Pentaerythritol tetranitrate (PETN) (an explosive) is sometimes included in the tests and would also be present in the wastes. SASN is categorized as a primary explosive, and each discrete crystal (when dry) has the potential to detonate. According to published technical data (Wilden, 1986), SASN can be initiated by the energy of bright light (by raising the surface temperature to the auto ignition temperature of 457 degrees Fahrenheit) or small contact shock. SASN is not approved for transport on public roads. Thermal treatment is an accepted treatment technology for the deactivation of explosive waste (20 NMAC 4.1.800/40 CFR 268.40 [10-1-03]) to meet treatment standards.

1.1 Designated Waste Management Area (20 NMAC 4.1.900/40 CFR 270.23[a])

The location of the TTF at SNL/NM is shown on Figure 1. The TTF has one designated WMA, the treatment area, shown on Figure 2.

The treatment area at the TTF is located outside the south end of Building 6715 in TA-III at SNL/NM. The treatment area consists of a square burn pan constructed of 0.375-inch (in.) steel, 2 feet (ft) 6 in. on a side and 6-in. deep. The bottom of the burn pan is elevated approximately 10 to 12 inches above the floor of the TTF by steel beams. The burn pan is located near the center of a square curbed slab of concrete 14 ft on a side lined with 0.5-in. steel, with a 4-in. high, steel-lined concrete curb around the edge. The burn pan is enclosed within a square cage approximately 4 ft on a side, consisting of expanded metal screen approximately 8-ft high with a nearly solid metal roof having slots for tracks and cables. An expanded metal screen door, remotely activated from inside Building 6715, provides access to the treatment area (i.e., the burn pan). Moveable steel panels are attached to the lower part of two sides of the cage to control airflow as needed. TTF site plans and drawings are presented in Figures 3 and 4.

An enclosure on the east side of the cage houses three propane burners, which can be remotely activated from inside Building 6715. Two propane burners are positioned to heat the burn pan. A third burner is positioned to ignite the contents of the burn pan and flammable vapors above the pan. Liquid wastes to be treated are transferred from Building 6715 to the TTF through flexible transfer hoses utilizing a remotely operated peristaltic pump. The hoses are contained inside a metal channel that provides secondary containment. The flexible hoses and channel terminate approximately 5 ft. from the burn pan and metal tubing transfers the waste the final distance into the burn pan. Solid items to be treated in the TTF are manually loaded into the burn pan.

Liquids that might accumulate at the TTF WMA are contained within a secondary containment system (i.e., the entire steel-lined concrete pad that drains through a filter into a catch tank) and the system is sufficiently impervious to contain spills or accumulated precipitation until the liquid is removed. The secondary containment system provided by the steel-lined concrete pad is designed to contain at least 20.8 gallons of liquid waste. This is the maximum volume of RCRA-regulated liquid waste in the TTF burn pan at any time. The catch tank has a containment capacity of approximately 157 gallons.

A circular tank located north of the unit and south of Building 6715 is primarily utilized as a process tank for collecting non-RCRA-regulated wastewater from test operations; wastewater collected in this tank is not intended to be treated at the TTF.

Because the TTF is located outside, it is difficult to prevent equipment deterioration; however, the unit and its ancillary equipment are periodically inspected to insure proper operation as described in Section 4.0 of this module. If deterioration sufficient to affect the operation, safety, or reliability of the unit is identified, the affected equipment is either refurbished or replaced.

1.2 Unit Operations (20 NMAC 4.1.900/40 CFR 270.23[a])

Information regarding operations requiring a permit at all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the SNL/NM General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.23; and 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Because the TTF is located outside, the steel-lined concrete pad periodically collects water from precipitation, and the water drains through a filter into the catch tank. The water typically contains some soil and may possibly contain silver-containing particulates if such particulates are present on the pad.

Treatment operations occur periodically at the TTF and typically involve burns during one to three days. Each treatment operation is followed by a post-treatment inspection, described in Section 8.0 of this module, which identifies kickout or contamination of the steel-lined concrete pad. Operating personnel wet contaminated areas with water and decontaminate them with wet paper wipes as described in Section 8.1.2. Alternatively, personnel may wash the areas. The wash water typically contains some soil and silver-containing particulates.

Water on the pad drains through a filter into the catch tank. Soil and other particulates are contained in the filter. The filter is managed as D011 hazardous waste due to the potential presence of silver. If the accumulated water in the catch tank was generated by either of the processes listed above, it will be assumed to meet City of Albuquerque wastewater discharge parameters and will be discharged (pumped) directly to the Technical Area III sanitary sewer system after appropriate notifications and approvals. Previous analyses of storm water collected in the catch tank indicate the water meets the wastewater discharge parameters set by the City of Albuquerque. Unit personnel will collect one sample of accumulated water annually; the sample will be analyzed for silver to check that the water continues to meet the discharge limits. If there is not sufficient accumulated water for annual sampling, personnel will collect a sample when water is available.

If water in the catch tank was generated by a process other than those listed above, it will be managed as described in Section B.2.5.1 of the Waste Analysis Plan (Appendix B).

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 20 NMAC 4.1.500/40 CFR 264.17)

1.2.2.1 General Precautions for Handling Reactive Waste

The grounds and berms near the TTF are routinely cleared of dry or dead weeds and brush. This helps to prevent brush fires near the TTF. During normal operations, wastes are not stored at the TTF prior to treatment, and the wastes are treated soon after transfer to or placement in the TTF burn pan, as described in Section 8.0 of this module.

Incompatible wastes are not accepted for treatment at the TTF. In particular, copper is incompatible with the explosive slurry of silver acetylide/silver nitrate (SASN) treated at the TTF; therefore, no exposed copper is allowed when SASN is present. No other materials that would produce undesirable reactions with RCRA-regulated waste (e.g., explosion, toxic fumes, or structural damage) are located at the TTF.

Sources of ignition that may be present at the TTF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel take the precautions and measures described in Section 1.1.2.1 of the General Part B to prevent accidental ignition or reaction of wastes at the TTF. Precautions during waste treatment activities are discussed in the following section.

1.2.2.2 Engineering and Operating Precautions to Prevent Reactions

<u>General Treatment Operations</u>

Unit personnel operate the TTF from the control room inside Building 6715. Personnel are not present in the area between Building 6715 and the Unit during treatment operations. Treatment operations begin only after an audible warning signal, an area check for personnel, and a public address announcement that the TTF will begin operations. The TTF access gates are closed

and locked. The Building 6715 complex fence access gates are closed during TTF waste transfer operations.

Solid Items

Solid items, saturated in water, are loaded manually into the burn pan. Unit personnel open the TTF expanded metal screen door from the control console in Building 6715. The door is operable only from the control console. Unit personnel then remove the key from the burner control, disabling the gas burner system, before manually loading waste into the TTF burn pan. Typically, the gas burner system is controlled by the same operator who manually loads the TTF burn pan.

Liquids

Liquids are transferred to the burn pan through the waste transfer pump and lines. The operator at the control console in the building operates the pump remotely. The burners may or may not be operating during the transfer, depending on the stage of the treatment operations.

Maintenance Operations

Prior to maintenance and repair activities that involve hot work such as welding or cutting, or other activities that involve direct contact with the burn cage, pan, equipment, pad, or surrounding area, operating personnel may check the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner to ensure that residual untreated explosive material is not present to cause a hazard to workers.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C)

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the TTF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrant at the TTF is shown in Figure 9. Information on other required equipment located at the TTF is provided in Section 6.0 and Table 3 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the TTF is provided in Appendix C of the SNL/NM General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the TTF is provided in Section 1.1.3.3 of the SNL/NM General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the TTF to prevent hazards. Additional information applicable to the TTF and all other Units at SNL/NM is included in Section 1.1.4 of the SNL/NM General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

TTF personnel employ the practices described in Section 1.1.4.1 of the SNL/NM General Part B to prevent hazards in unloading, as applicable. Waste treated at the TTF is pumped or hand-carried to the Unit from Building 6715. Unloading activities are limited to removal of ash residue from the burn pan or contaminated water from the catch tank, followed by loading of containers onto a flatbed truck or other vehicle for transport to another Unit. Vehicles are typically loaded on the paved area southeast of Building 6715 (Figure 7). The surface is level, the pavement is in good condition in the area, and there is sufficient room for the vehicles used to transport RCRA-regulated wastes between the TTF and the receiving Unit(s).

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land surrounding the TTF slopes gently toward the west. Sheet-flow runon of surface water from surrounding areas is diverted around the TTF treatment area by an 8-ft-high earthen berm that surrounds the Unit on the east, south, and west. The diverted storm water drains to the west.

Sheet-flow runoff from the outside face of the berms surrounding the TTF flows away from the Unit. Sheet flow runoff from the inside face of the berms is directed toward the center of the bermed area, around the steel-lined concrete pad, and toward the opening in the berm on the north side. The TTF burn pan sits near the center of the steel-lined concrete pad, which is surrounded by a 4-inch-high concrete curb and is elevated approximately 12 to 24 inches above the surrounding soil, further preventing runon.

The curbs also prevent runoff from the TTF WMA. Storm water that collects in the pad drains to the catch tank. The containment capacity of the catch tank exceeds the volume of treatment area runoff expected during a storm event.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated wastes at the TTF will affect water supplies, as described in Section 1.1.4.3 of the SNL/NM General Part B. Section 2.6 of this module includes a discussion of the surface water and groundwater in the vicinity of the TTF. Section 9.0 discusses the potential for the deposition or migration of waste or waste constituents to surface water and groundwater in the vicinity of the TTF.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B.

Four pieces of equipment at the TTF would be affected by a power failure: the burners, the motor-driven burn cage door, the motor-driven burn pan lid, and the waste transfer pump. In the event of a power failure, personnel would take the following actions.

1. If the power failure occurs before waste is placed inside the burn pan, treatment operations will be delayed until power is restored.

2. If the power failure occurs after wastes are present in the burn pan but before the burners are ignited, personnel will manually lower the burn pan lid and wait until power is restored before proceeding with treatment. If the treatment cannot be conducted during the same day, Unit personnel will wet the waste with water as needed to stabilize it, secure the area and notify Sandia/DOE security personnel of the presence of and potential hazards associated with the waste. Unit personnel will conduct treatment when power is restored and all other permit requirements for treatment operating conditions, listed in Section 8.1.3 of this module, have been met.

3. If the power failure occurs during treatment, personnel will not enter the TTF until all combustion has ceased and water has been added to the waste and residue to reduce the explosive hazard, and it is deemed safe to enter. If the power is not restored in time to complete treatment during the day, personnel will secure the area, manually lower the burn pan lid if it is deemed safe to do so, and allow the waste to remain in the burn pan. Unit personnel will notify Sandia/DOE security personnel of the presence of and potential hazards associated with the waste. Unit personnel will complete treatment when power is restored and all other permit requirements for treatment conditions have been met.

4. If power failure occurs during waste transfer, personnel will stop transferring waste and follow the procedures outlined in #3 above.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

TTF personnel employ the practices described in Section 1.1.4.5 of the SNL/NM General Part B to prevent undue exposure to the wastes to be treated at the TTF.

Hazards associated with the waste treated at the TTF (e.g., the explosive nature of the wastes) serve to increase the potential for personnel exposure to hazardous waste constituents. These are addressed through Unit design and operations:

- Treatment operations are scheduled as soon as practicable after the operations in Building 6715 are completed, minimizing the amount of time that explosive wastes are present on site.

- RCRA-regulated waste that cannot be pumped to the TTF (solid items) is first wetted with water to temporarily reduce the explosive sensitivity and minimize hazards to personnel.

- When wastes are present, Unit personnel keep the burn pan covered with the lid except when wastes are being loaded into the pan or combustion is occurring. This practice serves to minimize personnel exposure to the wastes.

- The TTF is operated from a control console inside Building 6715. Operating personnel observe the treatment through a video camera. During combustion, personnel are not allowed in the area between Building 6715 and the TTF. Both of these practices serve to minimize the potential for exposure to the wastes.

- Operating personnel may check the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner before maintenance and repair activities to ensure that residual untreated explosive material is not present to cause a hazard to workers.

In addition to the hazards associated with equipment operation and treatment of explosives, there are three sources of noise during treatment:

- Detonation of dried explosive SASN crystals from the liquids and solids treated at the TTF. Because the particles are small, the detonations are relatively small, with a popping noise similar to a popping balloon.

- Operation of the propane burners. The sound of the operating burners is similar to the sound of burners used in a hot air balloon.

- Warning bell/buzzer. The warning bell/buzzer is designed to alert Unit personnel to treatment operations. The bell/buzzer is louder than the propane burners or the detonation.

Because Unit personnel are inside Building 6715 during treatment, they are not subjected to the noise. Personnel in neighboring Sandia operations and buildings may hear the warning bells but will not be affected by the noise of TTF treatment. The closest continuously occupied

building is approximately 470 feet east southeast of Building 6715 and the TTF. The physical locations of neighboring buildings and personnel are summarized in Section 9.3 of this module.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi]; 20 NMAC 4.1.500/40 CFR 264 Subparts AA, BB, and CC)

TTF operations do not include storage of RCRA-regulated wastes in containers subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC. Further, operations do not include any storage or management associated with storage that would be subject to the requirements of 20 NMAC 4.1.500/40 CFR Subparts AA or BB.

The treatment process and releases to the atmosphere are described in Section 8.0 of this module. Compliance with the requirements of 20 NMAC 4.1.500/40 CFR Subparts AA, BB, and CC is discussed in Section 8.1.4.

1.3 Container Storage Practices

Sandia/DOE do not conduct container storage of RCRA-regulated wastes requiring a permit at the TTF.

1.4 Treatment Operations

The TTF is currently permitted for the treatment of RCRA-regulated wastes in accordance with the conditions of the “Sandia National Laboratories/New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-2” (NMED, 1994). Treatment practices applicable to the TTF are presented in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]).
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]).
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [10-1-03]).
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]).
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]).
- Unit-specific environmental setting information (20 NMAC 4.1.900/40 CFR 270.23[b] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.601[a][2-6], [b][3-9], [c][4,5] [10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of the SNL/NM General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the TTF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The TTF is completely surrounded by an approximately 8-ft high, single chain-link fence topped with three strands of barbed wire. Three gates provide access to the TTF and remain locked except when TTF personnel are performing treatment operations, inspections, maintenance, or repairs. The active portion of the TTF is also the south portion of the Building 6715 complex. Access to the north TTF fence, and, therefore, all three TTF gates, is from inside the Building 6715 complex, which is also completely surrounded by an 8-foot tall chain link fence with and lock-equipped gates. The Building 6715 doors are kept locked during non-operational

hours, restricting access to TTF controls. As noted in Appendix A of the SNL/NM General Part B, Sandia security personnel periodically monitor the Building 6715 complex and TTF gates during non-operational hours.

TTF personnel have Sandia-issued badges. Visitors contact TTF personnel for access. TTF personnel and visitors typically enter the Building 6715 complex through the east gate. During treatment events, all TTF gates are locked. These procedures limit access to the TTF WMAs, in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

The Building 6715 complex is located inside TA-III (Figures 1 and 2). TA III is surrounded by a barbed-wire fence with designated access gates. TA-III access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-III.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fences surrounding the TTF are posted with “Danger: Unauthorized Personnel Keep Out” (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the TTF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the SNL/NM General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes (e.g., ash) from the TTF include Wyoming Boulevard, Hardin Boulevard (formerly O Street), P Street, Pennsylvania Avenue, and the access road to TA-III.

Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved access road to TA-III turns southwestward off Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Boulevard Kirtland Air Force Base entrance gate as shown on Figure A-4 in Appendix A of the SNL/NM General Part B.

Within TA-III, traffic access to and from the TTF is along the 2-lane asphalt-paved roads shown on Figure A-6 in Appendix A of the SNL/NM General Part B. Vehicles entering the Building 6715 complex travel on a 2-lane asphalt-paved drive from the road to the east gate (Figure 5). Within the Building 6715 complex, waste is typically transported on concrete- or asphalt-paved surfaces.

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, Hardin Boulevard, and P Street are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Traffic volumes within TA-III are light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport equipment and waste containers.

Fewer than 15 vehicles typically enter/exit the compound per week. These include flatbed trucks and trailers carrying supplies, treated residues, and contaminated catch tank water from the TTF. SASN wastes are generated in Building 6715; therefore, wastes are not transported in vehicles to the TTF for treatment. Treated residues are transported to another Unit at SNL/NM for storage and/or treatment prior to disposal. Catch tank water may also be transported to another unit, as discussed in Section 1.2.1.

2.2.3 Traffic Control Signals

Vehicles must stop at a gate prior to entering or leaving TA-III. Only authorized personnel are permitted to enter TA-III. Speed limit signs (i.e., “30 mph Unless Otherwise Posted”) are located at several locations in TA-III.

There are no traffic control signals or signs at the Building 6715 complex. The TTF is locked except when personnel are present. Treatment operations are carefully coordinated with appropriate individuals to limit vehicle presence and access to operating and treatment personnel. The southeast corner of the Building 6715 complex is paved. Therefore, signals or signs are not necessary to control traffic within the Building 6715 complex.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11]; 20 NMAC 4.1.900/40 CFR 264.18)

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i] and [ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMA at the TTF is not located within 3,000 ft of any fault with Holocene displacement (see Section A.4.2 in Appendix A of the SNL/NM General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMA at the TTF is not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the SNL/NM General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19] and 270.23[b]; 20NMAC 4.1.500/40 CFR 264.601[a][6] and [b][9])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) and 270.23[b] [10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [10-1-03]).

- Surface waters, including intermittent streams, near the TTF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii][10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the SNL/NM General Part B and Figure 6 of this module. (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] and 270.23[b]; 20NMAC 4.1.500/40 CFR 264.601[a][6] and [b][9] [10-1-03]). The area surrounding the TTF is occupied by test areas and Sandia-controlled operations (industrial land use). The area of KAFB immediately north of SNL/NM TA-III is mostly open (other land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [10-1-03]).

- Legal boundaries of SNL/NM (including the TTF) are shown on Figure A-2 in Appendix A of the SNL/NM General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [10-1-03]).

- Access control features at the TTF (e.g., fences, gates) are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the TTF are shown on Figure A-2 in Appendix A of the SNL/NM General Part B and Figure 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [10-1-03]).

- The location of the TTF WMA and associated structures, loading and unloading areas, roads, and sanitary sewers are shown on Figures 6 and 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figures 6 and 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [10-1-03]).

- The location of the TTF WMA is shown on Figure 6 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][xii] [10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the TTF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03], SNL/NM has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the TTF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information for SNL/NM is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The TTF is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor is the TTF likely to affect groundwater quality during normal operations or during unusual events.

2.6 Environmental Setting (20 NMAC 4.1.900/40 CFR 270.23[b], and 20 NMAC 4.1.500/40 CFR 264.601[a][2-5], [b][3-8], [c][4,5])

As described in Appendix A of the General Part B, SNL/NM is located in the western part of Kirtland Air Force Base in Bernalillo County. DOE/Sandia monitor weather conditions and ambient air quality at SNL/NM through a network of monitoring stations. Meteorological data from a tower at the northeast corner of TA-III indicate that the prevailing winds at SNL/NM are from the southeast and east. The annual wind rose is shown on Figure 6. During daylight hours, the prevailing winds are from the west, southwest, and northwest. Rapid nighttime ground cooling after sunset on cloudless or near-cloudless nights generates drainage winds out of the mountains; in TA-III, these winds come from the southeast and east (SNL, 2004b, 2002).

Bernalillo County meets the New Mexico and national ambient air quality standards (AAQS) for ozone, particulates, lead, and oxides of nitrogen and sulfur. Bernalillo County currently meets the New Mexico and national AAQS for carbon monoxide. DOE/Sandia monitor ambient air quality at several stations; the two nearest the TTF are located north of TA-III and at the southeast corner of TA-III (near the existing RMWMF). Data from both stations indicate air quality is in compliance with New Mexico and national AAQS. The monitoring results also allow DOE/Sandia to establish background airborne concentration levels for pollutants of concern and determine that SNL/NM operations do not affect ambient air quality (SNL, 2004b, 2002).

SNL/NM is located in an arid region with an average annual precipitation of approximately 8 inches (National Oceanographic and Atmospheric Administration [NOAA], 1990). Half of the average annual precipitation occurs in the form of brief but heavy thunderstorms during the summer period, July through September.

Water rarely infiltrates more than a few feet into the soil, and typically returns to the atmosphere via evapotranspiration. Evapotranspiration in the area has been estimated at 95 percent of the annual rainfall (Thomson and Smith 1985). Sandia/DOE have conducted extensive field investigations and analytical studies in TA-III. Data collected from boreholes, groundwater monitoring wells, and instantaneous profile tests have measured saturated and unsaturated zone characteristics that include volumetric water content, saturated and unsaturated hydraulic conductivity, bulk density, and isotopic chloride content (Peace et al., 2002). Based upon these

data, groundwater recharge is negligible at TA-III and most of the water from precipitation returns to the atmosphere via evapotranspiration. Vegetation, although sparse at the site, increases the rate of moisture loss from the subsurface soil through transpiration.

Sandia/DOE's ongoing Terrestrial and Ecological Surveillance Program includes monitoring for the presence of various compounds in soil, sediment, surface water, and vegetation near past or present SNL/NM operations (SNL/NM, 2004b, 2002). As part of the program, samples of soil and vegetation have been collected for several years at a location in the northern part of TA-III (approximately 600 feet northeast of the TTF). The samples collected each year, including 2003 and 2001 were analyzed for several metals, including silver. Concentrations of silver and other metals in the soil and vegetation vary slightly from year to year due to slight variations in sampling location, differences in climatic conditions, and laboratory variations or errors. The silver concentrations in the samples from this location were consistent with the levels in off-site samples. Silver has historically and consistently been detected in soils at concentrations that are consistent with those found in off-site locations, and the data do not indicate a trend toward increasing concentrations over time (SNL/NM, 2004b, 2002).

As noted in Appendix A of the General Part B, the nearest major body of surface water (the Rio Grande river) is situated approximately 7 mi west of the TTF. Surface water (with the exception of several springs in the eastern part of KAFB) is found only as ephemeral streams that flow for short periods from runoff after storm events or during the spring melt of mountain snowpacks. The primary surface water drainage channels on KAFB are Tijeras Arroyo and Arroyo del Coyote (which joins Tijeras Arroyo north of TA-III.) Surface water in TA-III infiltrates into the soil, and does not flow to either of the arroyos or to the Rio Grande.

The depth to saturated groundwater underlying SNL/NM TA-III is approximately 500 feet. Sandia/DOE have an established extensive groundwater monitoring system to assess the quality of the groundwater in the SNL/NM area. The monitoring network includes observation wells, test wells, production wells, and other hydrogeologic devices. Routine samples are analyzed for toxic constituents, basic water quality, and water levels. The results are published annually in the Groundwater Monitoring Report (SNL/NM, 2003).

The historical direction (no longer apparent) of regional groundwater flow in the western part of KAFB (including the area west of TA-III) has been westward from the mountains toward the Rio Grande (Gram, 1985). However, due to groundwater pumping by KAFB and the City of Albuquerque, a depression in the water table has created a broad trough (drawdown) directing flow towards the well fields at the northwest end of KAFB. The trough extends as far south as TA-III and affects groundwater flow at the western edge of TA-III. The TTF is east of the trough, and groundwater flow under the TTF is toward the west (SNL/NM, 2001a, 2001b).

The well fields at the northwest end of KAFB are located approximately 3 miles northwest and downgradient of the TTF, and the closest downgradient water supply well is KAFB-4. Approximately 117,000 gallons of water were pumped from Well KAFB-4 during the 12-month period ending September 30, 2001. During the same time period, approximately 1.2 billion gallons of water were pumped from all the KAFB wells (SNL/NM, 2003).

Over 280 archeological sites have been recorded on KAFB (including the withdrawn area), and in the buffer zones west of KAFB. No archeological sites or Native American traditional cultural properties have been identified in TA-III (DOE, 1999).

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/ 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/ 40 CFR 264.13, “General Waste Analysis” [10-1-03], waste analysis requirements applicable to all units, including the TTF, are addressed in Appendix B of the SNL/NM General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03] require that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated wastes to ensure that human health and the environment will be protected.

20 NMAC 4.1.500/40 CFR 264.15(b)(4) [10-1-03], requires inspections of specific portions of a facility, rather than the general facility. RCRA-regulated waste at the TTF is managed in a miscellaneous unit requiring inspection as a “specific portion” of the SNL/NM facility. 20 NMAC 4.1.500/40 CFR 264.602 [10-1-03], requires that inspections required in 20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03], as well as any additional requirements needed to protect human health and the environment, be met. The requirements of 20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] are discussed in this section, Section 6.0, and Appendices C and E of the SNL/NM General Part B.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the “Site-Wide Inspection Plan”, provided as Appendix C of the SNL/NM General Part B. TTF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 1, with the inspection criteria and frequency.

The inspection results (including any remedial actions taken) are recorded on a form similar to those in Appendix C. The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms similar to the ones presented in Appendix C. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained in Building 6715. Inspection records for previous calendar years are maintained in Building 6715 or the SNL/NM Records Center.

Table 1
Thermal Treatment Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 3 "Emergency Equipment" in this module for additional information**		
Eye wash and safety shower	Operational, accessible, in good condition	Monthly
First-aid kit	Present and stocked	Monthly
Personal protective equipment	Required items present and in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Public address system	Operational	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Waste transfer pump	Present, operational, and in good condition	Prior to use
Waste transfer tubes	Free of apparent leaks and in good condition	Prior to use
Burn pan	Present, free of apparent leaks, and in good condition	Prior to treatment. Monthly otherwise.
Burn pan lid	Operational and in good condition	Prior to treatment. Monthly otherwise.
Burn cage	Present and in good condition	Prior to treatment. Monthly otherwise.
Burn cage door	Operational and in good condition	Prior to treatment. Monthly otherwise.
Steel-lined concrete pad	Free of apparent cracks and in good condition	Monthly
Filter element	Present, free of apparent tears or holes, and in good condition	Monthly
Rain catch tank	Free of apparent leaks and in good condition	Monthly

Table 1 (Concluded)
Thermal Treatment Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Area condition	Free of combustible materials and weeds and in good condition	Prior to treatment. Monthly otherwise.
Red warning beacons	Present and operational	Prior to treatment. Monthly otherwise.
Water spigot and hose	Present, operational, and in good condition	Prior to treatment. Monthly otherwise.
Burner control warning bell	Operational	Prior to treatment. Monthly otherwise.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present legible, and in good condition	Monthly
Gates	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/ 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [10-1-03] "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the TTF.

TTF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the SNL/NM General Part B.

Only the following job descriptions identified in Appendix D, Table D-2 are applicable at the TTF: Training Director, Project Leader, Emergency Coordinator, Field Technician, and Inspector.

Additional training designed to specifically teach TTF personnel (i.e., TTF Project Leader, TTF Field Technician, TTF Inspector) to perform their duties safely and in conformance with regulatory requirements is presented in this section. TTF training course content includes, at a minimum, the topics shown in Table 2.

Training records for TTF personnel are maintained in Building 6715.

Table 2
Thermal Treatment Facility
Resource Conservation and Recovery Act-Regulated Waste Management Unit
Training Content

Explosives Personnel Safety Course

Duration: Variable (Typically 16 hours)
Frequency: Initial
Method: Classroom instruction

Minimum content may include:

- Basic explosives definitions
- Overview of explosives and explosive device categories and characteristics
- Initiation stimuli and safety guidelines for avoiding accidental ignition
- Standards for explosives operations, including compatibility, storage, and standard operating procedures

Operating Procedures of the Thermal Treatment Facility

Duration: Variable (Typically 4 hours)
Frequency: Annual
Method: Classroom instruction, on-the-job training, and/or document review

Minimum content may include:

- Overview of written operating procedures
- Overview of the waste analysis plan
- Safety practices
- Security, site entry, and site control
- Facility operations
- Facility equipment and structures
- Procedures to prevent the reaction of reactive waste
- Permit requirements for the Thermal Treatment Facility

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permitted units are specified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart D [10-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the SNL/NM General Part B. Supplemental TTF-specific information is included in this section, in Figure 9, and in Tables 3 and 4 of this module. Current copies of the site-wide contingency plan and this supplemental information are maintained in Building 6715 and at the SNL/NM Emergency Operations Center.

The TTF is located in the north-central portion of Technical Area III at SNL/NM, just south of Building 6715. The TTF consists of a square, steel burn pan, 30 inches (in.) on each side and 6 in. deep. A remotely-operated metal lid can be raised to open, or lowered to cover, the burn pan. The burn pan is enclosed by an expanded metal screen (i.e., open to the air) cage, approximately 4 feet (ft) on each side and 8 ft tall. Access to the burn pan is provided by a door on the north side of the burn cage, which is operated remotely using controls inside Building 6715. The burn cage sits in the center of a steel-lined concrete pad. The concrete pad is surrounded on the west, south, and east sides by an earthen berm, approximately 8 ft tall. An 8-ft-high chain-link security fence surrounds the entire TTF.

The TTF is used to thermally treat (i.e., burn) small quantities of waste explosive substances, waste liquids (e.g., water, volatile organics) contaminated with explosive substances, and waste items (e.g. rags, wipes, swabs, filters, wood, and inert test debris) contaminated with explosive substances. Wastes treated at the TTF may have U.S. EPA Hazardous Waste Numbers D001, D003, D011, and F003.

RCRA-regulated waste is not stored at the TTF and is only present just before and during treatment operations. However, if for some reason treatment operations are aborted and it is deemed unsafe to remove the waste, the waste will be wetted as needed to stabilize it, the burn pan lid will be lowered remotely to cover the burn pan and the waste will remain there until it is possible to perform the treatment or safely remove the waste. Personnel will not enter the TTF unless waste is not present, or it is fully treated, or it has been stabilized by saturation with water.

Figure 9 presents the evacuation route, emergency response, and access information for the TTF. Table 3 lists the emergency equipment typically available at the TTF. Table 4 lists the emergency coordinators for the TTF.

Table 3
Thermal Treatment Facility, Emergency Response Equipment

Building 6715 Complex

Category	Description/Capabilities	Location
Safety and Decontamination Equipment	Permanent eyewash/hand-held deluge showers	Building 6715
	First aid kit	Building 6715
	Absorbent (sufficient absorbent for 20.8 gallons of liquid that could be present in the burn pan)	Building 6715
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at Building 6715
	Recovery drums and containers	In equipment storage at Building 6715
	Miscellaneous PPE (protective suits, goggles, gloves)	Building 6715
Internal Communication and Alarm System	Fire alarm pull station (pulling handle sends signal to KAFB fire department)	One on east wall inside Building 6715 near personnel door
	Public address system	Microphone in Building 6715
External Communication System	Telephones	Building 6715
	Fire alarm pull station (pulling handle sends signal to KAFB fire department)	Near personnel doors in Building 6715.
Fire Extinguishers	Portable (A-B-C)	One at or near each personnel door in Buildings 6715, one located at the TTF fence.
Fire Suppression	Water supplied by fire hydrant	One hydrant, location shown in Figure 9

KAFB Kirtland Air Force Base

Table 4
Thermal Treatment Facility, Emergency Coordinator List

November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	David Castillo Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-4192 (office) (505) 540-9375 (pager)	(505) 899-1956
First Alternate	Bill Suderman Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-4218 (office) (505) 540-4019 (pager)	(505) 265-1786
Second Alternate	Tim Covert Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-4664 (office) (505) 530-0215 (pager)	(505) 299-5367

One or more of these personnel are routinely available during operating hours (7:00 am to 5:00 pm on days when activities are conducted in Building 6715).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and X, [10-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the General Part B. The site-wide plan includes a description of the SNL/NM facility, waste descriptions, closure performance standards, general closure methods, a sampling and analysis plan (SAP), a general closure schedule, procedures for amendment of the plan, closure certification and letter, survey plat, and post-closure requirements. Unit-specific information for closure of the TTF is included in this section.

7.1 Unit Description

The TTF is located in the north-central portion of Technical Area III at SNL/NM, just south of Building 6715. The TTF consists of a square, steel burn pan that is 30 in on each side and 6 in. deep. A remotely-operated metal lid can be raised to open, or lowered to cover, the burn pan. The burn pan is enclosed by an expanded metal screen (i.e., open to the air) cage, approximately 4 ft on each side and 8 ft tall. Access to the burn pan is provided by a door on the north side of the burn cage, which is operated remotely from controls inside Building 6715. The burn cage sits in the center of a steel-lined concrete pad. The concrete pad is surrounded on the west, south, and east sides by an earthen berm, approximately 8 ft high. An 8-ft-high chain-link security fence surrounds the entire TTF.

7.2 Estimate of Maximum Waste Inventory (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum inventory of RCRA-regulated waste in treatment at any time at the TTF is no more than 20.8 gallons of explosive-contaminated material. This is the maximum volume of RCRA-regulated waste that could be removed from the TTF as part of closure activities.

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan in Appendix F , partial closure activities specified in this plan assume the following conditions were met during the operational life of the TTF:

- Waste handling activities at the TTF under this permit were confined to the burn pan and immediate surrounding area. If contamination occurred, it would have been confined to those areas.

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- RCRA-regulated wastes have been kicked out onto the steel-lined concrete pad during treatment. The kickout has been identified and removed during the post-treatment inspections.

- The concrete pad has been covered with the steel liner and therefore does not contain elevated concentrations of RCRA-regulated wastes or hazardous waste constituents (i.e., silver).

- If RCRA-regulated wastes were kicked out beyond the edge of the steel-lined concrete pad during treatment, they would have been deposited on the earthen berm near the pad. Personnel inspected the berm and removed visible kickout following treatment operations.

- The burn pan and all other equipment were maintained to retain their integrity by following established maintenance and inspection procedures.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the TTF. Sandia/DOE will use the following approach:

- Items of equipment within the TTF treatment area will be removed, including the burn pan and lid, metal screen cage, ancillary equipment, and the steel liner on the concrete pad. Items that are removed will be recycled, if possible. Those that cannot be recycled will be characterized to determine requirements for management.

- The soil in the berm will be excavated, characterized to determine requirements for management, and removed from the TTF site if it contains elevated concentrations of RCRA-regulated wastes or hazardous waste constituents (i.e., silver) from the treatment operations at the TTF. Soil that does not contain elevated concentrations of silver may be left at the site and used for general grading purposes.

- The concrete pad will be characterized to determine requirements for management, and removed from the TTF site.

- The soil under the concrete pad and in the areas surrounding the earthen berm will be sampled and analyzed to determine whether it contains elevated concentrations of silver from TTF operations. Additional soil will be removed as needed to achieve clean closure of the Unit.

7.4.2 Closure Schedule

Section F.7 of the site-wide closure plan in Appendix F provides a timeline for closure activities applicable to all permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the TTF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the TTF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide closure plan presents sample collection equipment and techniques applicable to all Units at the SNL/NM facility. This Unit-specific SAP describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the TTF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [10-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples; required analytical constituents; closure criteria; QA and quality control [QC] procedures) regarding RCRA closure of the TTF.

7.5.1 Sampling and Analysis Scope

This SAP presents procedures for acquisition, analyses, and evaluation of samples that will be obtained during closure activities at the TTF (described above).

The TTF components will be recycled, if possible. Any components that cannot be recycled will be characterized to determine proper management. The concrete pad and the soil from the earthen berms will also be characterized to establish appropriate management.

Soil samples from beneath the concrete pad and the areas surrounding the berms will be collected for analysis and compared to the established background soil concentration to demonstrate clean closure of the Unit. If the background concentration is exceeded in these soil samples, additional sampling will be conducted, and soil exceeding the background concentration will be removed. Sampling, analysis, and removal of these soils will continue until the applicable criterion for clean closure is met. All samples will be analyzed for silver, which is the only hazardous waste constituent remaining in the ash after treatment at the TTF (as described in Section 9.1 of this Module).

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The components of the TTF will either be recycled, or characterized to determine if they are hazardous waste, or declared hazardous waste (due to the potential deposition of silver, D011) and managed appropriately. In the second instance, characterization will consist of collecting a representative sample from each component. This sample will be biased towards surface areas suspected of being contaminated (e.g., visibly stained or discolored areas).

The concrete pad will be characterized to determine if it will be managed as solid waste debris or hazardous waste debris. A representative sample will be collected, and the location will be biased towards an area that is suspected of being contaminated (e.g., a visibly stained or discolored area).

The soil comprising the earthen berm surrounding the TTF will be removed, and a composite grab sample will be collected from each 20-cubic-yard batch of soil. These characterization samples will be analyzed to determine if the threshold concentration for silver is exceeded and to determine appropriate management methods.

The soil beneath the concrete pad and in the areas surrounding the earthen berm will be sampled to determine if the threshold concentration for silver is exceeded. The locations for and number of these samples will be determined at the time of closure because it is not feasible to identify them until the pad and the earthen berm are removed and the areas are evaluated to determine appropriate sample locations (e.g., stained or discolored areas).

7.5.2.2 Sample Collection

A representative sample will be collected from components comprising the TTF if it is determined that any component cannot be recycled and sampling and analysis is necessary for characterization purposes. Each sample will be analyzed for total silver and/or for silver content in leachate using the Toxicity Characteristic Leaching Procedure (TCLP).

A representative sample will be collected from the concrete pad for characterization purposes. This sample will be analyzed for total silver and/or for silver content in leachate using the TCLP.

A representative composite grab sample will be collected for characterization purposes from each 20-cubic-yard batch of soil removed from the earthen berms surrounding the TTF. Each sample will be analyzed for total silver.

Representative samples of soil will be collected from the area beneath the concrete pad and from the areas surrounding the earthen berm after the pad and berm are removed to demonstrate clean closure. Each sample will be analyzed for total silver.

7.5.2.3 Sampling Equipment

Samples of the TTF components will be collected, as necessary, using appropriate equipment (e.g., metal cutters). Samples of the concrete underlying the Unit will be collected using appropriate equipment (e.g., a chisel or hammer). Samples will be placed in pre-cleaned wide-mouth glass jars with screw top lids, or other approved containers that are appropriate for the material and the analysis.

Soil samples will be collected with a disposable scoop, trowel, or equivalent sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., metal cutters, chisels, hammers, scoops, trowels) will not be required for the sampling procedures used in this closure. For each soil sample, new disposable sampling equipment will be used to prevent the possibility of cross-contamination between sample locations, and to eliminate the need for decontamination.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., soil batch, Unit component), the sample type (random, bias, composite), and any additional information that may be necessary. As an example, the sample numbered TTF-PAD-BIAS-SOIL-01 would indicate a biased soil sample taken from beneath the concrete pad at the TTF.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., , the recommended maximum holding time for silver analysis is 180 days from sample collection until extraction).

7.5.3 Demonstration of Clean Closure

The following presents the criteria that will be used to evaluate characterization samples and to demonstrate that clean closure has been achieved for the TTF. Silver has been selected as the indicator parameter to evaluate characterization samples and to demonstrate clean closure, as it is the only hazardous waste constituent remaining in the ash after treatment occurs at the TTF.

All components of the TTF (the concrete pad and above) will be removed. The components of the TTF will either be recycled, or characterized to determine if they are hazardous waste, or

declared to be hazardous waste (D011, due to the potential deposition of silver), and will be managed appropriately. In the second case, the characterization will be based on analytical results. If the total silver concentration(s) is less than 100 milligrams per kilogram (mg/kg), or if the TCLP silver concentration(s) is less than 5 milligrams per liter (mg/L), the components are not RCRA-regulated waste. (Note that the TCLP silver concentration that is the basis for a hazardous waste determination cannot exceed the regulatory threshold if the total silver concentration is less than 20 times the threshold).

Total silver concentrations (determined by analysis) from characterization sampling of the soil comprising the earthen berm will be compared to the most current residential soil screening level (SSL) for silver (NMED 2004). The current residential SSL is 391 mg/kg (NMED, 2004). If characterization sampling results are equal to or lower than the SSL, soil contamination is not indicated, and the soil will be made available for reuse on site. If the characterization sampling results indicate the silver level is equal to or exceeds the SSL, the subject batch(es) of soil will be further evaluated to determine appropriate management requirements. The soil will be excavated and removed, or a risk assessment will be performed to demonstrate that remaining silver does not pose a potential unacceptable risk to human health or the environment..

Soil beneath the concrete pad will be evaluated in the same manner as the soil comprising the earthen berm. Analytical results for silver will be compared to the most current residential SSLs, and the soil will be managed accordingly. The soil comprising the berm and the soil under the concrete pad will be excavated as needed until the remaining soil contains silver at levels below 391 mg/kg or the most current residential SSL for silver.

7.5.4 Quality Control

QC for sampling and analysis at the TTF will be implemented as described in Section F.6 of the site-wide closure plan.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.

7.6 Characterization Procedures

Section F.5.2 of the site-wide closure plan presents general procedures applicable to all Units at the SNL/NM facility. Prior to closure, this Unit-specific plan will be updated as necessary to incorporate new or improved characterization practices or technology. Any revisions to this Unit-specific plan will be submitted to NMED for approval prior to initiation of closure activities at the TTF.

7.7 Contingent Post-Closure Care

The intent of the site-wide and Unit-specific closure plans is to establish procedures for clean closure of permitted Units used for management of RCRA-regulated wastes. It is expected that

the closure activities described herein will successfully remove silver from the Unit and surrounding soils. In the unlikely event that soil contamination remains upon completion of closure activities at the TTF, Sandia/DOE will prepare a post-closure plan to address this contamination in accordance with 20 NMAC 4.1.500/40 CFR 264.118.

8.0 TREATMENT PLAN

In accordance with 20 NMAC 4.1.900/40 CFR 270.23 [10-1-03], treatment operations for RCRA-regulated wastes treated at the TTF are described in this section. Waste analysis procedures are provided in Appendix B (Section B.3.2 and Section B.3.3) of the General Part B.

8.1 Treatment Operations

The treatment is designed to deactivate the reactive and ignitable components of the wastes. Thermal treatment is an accepted treatment technology for the deactivation of explosive wastes (20 NMAC 4.1.800/40 CFR 268.40 [10-1-03]) to meet treatment standards. The wastes may also contain pentaerythritol tetranitrate (PETN, an explosive); however, PETN is rarely used in the process. PETN and SASN both exhibit the hazardous waste characteristic of reactivity (D003). The treatment also effectively deactivates the ignitable (D001) components in the SASN slurry and liquid wastes. The residue may require further treatment to address other constituents, as discussed in Section B.3.3.1 in Appendix B of the General Part B.

The wastes treated at the TTF are typically generated as a result of the formulation of SASN slurry, its application to test articles, and cleanup activities during and after the tests. The tests typically take one to three days, and wastes are generated and treated intermittently during this period. Liquid RCRA-regulated wastes are generated from the formulation and application of SASN slurry. Solid RCRA-regulated wastes (e.g., wipes, rags, swabs, filter elements, cardboard masks, wood, and inert test debris) are generated as a result of cleanup during and after the tests. The solid items are typically saturated with water to protect personnel from explosive hazards.

According to published technical data (Wildin, 1986), SASN can be initiated by the energy of bright light (by raising the surface temperature of the SASN to the auto ignition temperature of 457 ºF) or small contact shock. The TTF was specifically built to treat SASN slurry and SASN contaminated waste because of the hazards associated with handling the waste.

A description of the TTF burn pan design, construction, and materials is provided in Section 1.1 of this module to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.23(a) [10-1-03]; and 20 NMAC 4.1.500/40 CFR 264.601 [10-1-03].

Prior to treatment operations (treatment of wastes in conjunction with a test), TTF personnel perform a pretreatment inspection of the Unit as described in Section 4.0 of this module. During treatment operations, Unit personnel have immediate access to a telephone to summon help, if needed, as described in Section 6.0 of this module.

8.1.1 Waste Quantities

The TTF is limited to the treatment of the following quantities of reactive wastes during treatment operations:

- The maximum net explosive weight of explosive treated during any treatment operation will not exceed 2.4 pounds (1.092 kilograms).

- The maximum total volume of SASN-contaminated wastes (solid and liquid combined) present in the burn pan at any time will not exceed 20.8 gallons (78.7 liters), the capacity of the burn pan.

- The maximum total mass of wastes (solid and liquid combined) present in the burn pan at any time will not exceed 190 pounds (86 kilograms).

If more restrictive conditions are imposed by the annual Open Burn Permit issued by the Albuquerque/Bernalillo County Air Quality Control Board (A/BCAQCB), those conditions will be followed. The Open Burn Permit and conditions are described in Section 8.1.4.

8.1.2 Operations

Liquid waste is generally pumped to the TTF utilizing a remotely-operated peristaltic pump that is located inside the area where SASN is formulated and used. The waste is transferred to the TTF burn pan via flexible hoses and metal tubing that lead into the burn pan. RCRA-regulated waste that cannot be pumped to the TTF (solid items) is first wetted with water to temporarily reduce the explosive sensitivity and then hand carried in appropriate containers and manually placed or poured into the burn pan by qualified personnel, using extreme care to prevent spills. TTF personnel are required to wear appropriate personal protective equipment when performing treatment operations.

After the waste is pumped and/or manually placed or poured into the burn pan, all open TTF gates are closed and locked and the door to the TTF is closed remotely. Transfer of liquid waste to the TTF can be accomplished remotely, without opening the TTF door or accessing the fence gates. The burn pad lid remains closed as much as possible except during loading and combustion to minimize evaporation of volatile waste.

The area between the TTF north fence and Building 6715 is cleared of all personnel by announcing over the public address system that treatment operations will soon commence. The TTF is controlled from the console inside Building 6715. Propane burners are pre-positioned to both heat the burn pan and ignite the contents; this is necessary to vaporize water-bearing wastes so that the explosive component can be treated effectively. The burn pan lid is raised if needed and the burners are ignited and operate until combustion is complete. To provide additional assurance of complete treatment, personnel typically operate the burners for a period of time (typically 30 to 60 minutes) after the last treatment of the day is complete (i.e., all the explosives are deactivated and the ignitable liquids are combusted). Unit personnel use visual and audible evidence to determine treatment completion. Evidence of complete deactivation of explosives is the cessation of audible popping noises and visual flashes of light and/or puffs of smoke. Evidence of the complete combustion of ignitable liquids includes the absence of large yellow flames from the burn pan and absence of liquid inside the burn pan. After treatment and/or the post-treatment burn are complete, Unit personnel turn off the propane burners and lower the lid to preclude wind dispersal of treatment residue and water infiltration into the burn pan during the cool-down period. The cool-down period varies, but generally will not exceed 24 hours.

After the cool-down period, Unit personnel perform a post-treatment inspection to identify any untreated waste in the burn pan and contamination and/or "kickout" on the steel-lined concrete pad. Kickout is defined as untreated RCRA-regulated waste ejected from the burn pan during treatment. Kickout has occasionally been observed during treatment, and particles of untreated waste have been observed on the steel-lined concrete pad during post-treatment inspections. If any kickout is observed, Unit personnel wet it with water, wipe it up with wet paper wipes, and place the wet wipes in the burn pan for treatment. Untreated waste remaining in the pan and kickout returned to the burn pan are subsequently retreated. If the inspection indicates that all the waste has been treated, personnel remove the contents of the burn pan (i.e., all loose residue) using plastic scoops or a vacuum cleaner equipped with a high-efficiency particulate air filter. Personnel then lower the lid to minimize ash dispersal. The residue is containerized, characterized as described in Section B.2.5.1 of the WAP (Appendix B), and managed appropriately.

Following the post-treatment inspection and ash removal, Unit personnel may perform an additional review, checking the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner to determine whether small quantities of additional kickout (small particles that are not visually observed during the post-treatment inspections) are present. Visible kickout identified during this review will be collected as described above and treated in the burn pan.

8.1.3 Operating Conditions

To minimize air emissions or exposure of people to toxic or hazardous air emissions, the TTF will be operated only:

- Between the hours of 7 a.m. and sunset. Operations may extend beyond sunset if necessary to complete treatment and post-treatment burn of the wastes in the burn pan.
- When the wind speed is less than or equal to 20 miles per hour (mph).
- When threatening weather is less than 10 miles (mi) from the TTF. Threatening weather is defined as winds in excess of 35 mph; tornadoes; electrical storms with or without precipitation of any type; snow storms with a visibility of less than 2000 feet; rain with accumulations greater than 0.3 inch per hour; or any hail, sleet, or ice storms.

8.2 Preventing Releases to the Atmosphere

TTF personnel employ the practices described in Section 8.2 of the SNL/NM General Part B to prevent releases to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

TTF treatment operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

8.2.2 Subpart BB

TTF operations involve a pump and transfer lines in light organic service. These are used less than 300 hours per calendar year and are therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052-.1060 as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f). A list of the equipment will be maintained in the Unit records, as described in Section 9.0 of the General Part B. Hours of operation will also be noted in the Unit records.

The TTF is subject to the regulations of the A/BCAQCB. Open burning of high explosives is allowed under A/BCAQCB Regulation Number 3 when transporting the material would be unnecessarily hazardous. The TTF is granted a permit for open burning of explosives by the City of Albuquerque on an annual basis. Treatment will be restricted to the open burning conditions imposed by the most current City of Albuquerque Open Burn Permit.

8.2.3 Subpart CC

TTF treatment operations do not include management of RCRA-regulated wastes in containers subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart CC.

8.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

The thermal treatment of RCRA-regulated waste at the TTF is completely effective in deactivating explosive and ignitable constituents in the wastes. The auto ignition temperature of SASN is 457 degrees Fahrenheit (°F). Propane, used to ignite the waste, has a flame temperature of 3500°F. The TTF burners are operated for a minimum of 30 minutes after there is no visual (sparks) or audible evidence of untreated explosive waste remaining in the burn pan. No waste explosives have been observed in the treated TTF ash.

Given the extremely high vapor pressure and low flash points of ignitable solvents (e.g., acetone, acetonitrile) that may be treated at the TTF (the flash point of acetone is 15°F and the flash point of acetonitrile is 35.6°F), it can be concluded that the materials are completely burned and decompose to gaseous by-products and ash.

The principal by-products of combustion of liquids and solids treated at the TTF are ash (carbon), gases, and silver. Gases consist primarily of nitrogen, water vapor, carbon dioxide, carbon monoxide, sulfur dioxide, diatomic oxygen, and traces of nitrous oxides. Treated residues (ash) are managed in accordance with applicable RCRA requirements and characterized in accordance with Section B.3.3.1 of the site-wide WAP (Appendix B).

Some evidence of occasional kickout during treatment has been observed. In such cases, Unit personnel remove the kickout and treat it in the TTF as described in Section 8.1.2.

9.0 ENVIRONMENTAL PERFORMANCE STANDARDS FOR THE MISCELLANEOUS UNIT

The TTF will be operated, maintained, and closed in a manner that will ensure protection of human health and the environment, in accordance with 20 NMAC 4.1.500/40 CFR 264.601 [10-1-03]. The Unit is located in a sparsely populated area, and is designed and operated to facilitate safe handling and treatment of RCRA-regulated wastes in order to prevent adverse impacts to human health and the environment. The Unit features, small quantities of waste treated, and operating requirements minimize the potential for a release. Operations, including hazard prevention features and practices, are described in Sections 1.2 and 8.1 of this module. Contingency and emergency response actions to minimize impacts of unanticipated events, such as spills, are described in Section 6.0 of this module. Treatment operations and effectiveness are described in Sections 8.1 and 8.2 of this module.

In conformance with 20 NMAC 4.1.500/40 CFR 264.601 [10-1-03], a miscellaneous hazardous waste storage, treatment, or disposal facility must be shown to prevent any releases to groundwater, surface water, soil, or air that may have adverse effects on human health and the environment. The TTF has been designed and is operated in such a manner as to meet these requirements, as described below.

9.1 Characteristics of the Waste and the Unit (20 NMAC 4.1.500/40 CFR 264.601[a][1], [b][1,2], and [c][1-3])

Sandia/DOE assessed the potential risk to human health and ecological receptors due to operation of the TTF under the conditions described in this module. The chemicals of potential concern (COPCs) and Unit features are summarized below.

9.1.1 Waste Characteristics

Waste quantities are discussed in Section 8.1 of this module. The RCRA-regulated wastes treated at the TTF consist of the following:

- A liquid or slurry containing varying amounts of acetone, acetonitrile, nitric acid, water, and typically some SASN crystals. The liquid or slurry may also contain PETN.

- Solid items containing or coated with SASN, such as paper wipes, cotton rags and swabs, filter elements, test debris (pieces of wood and metal), incidental silver nitrate that did not react to form SASN, and traces of Viton™ fluoroelastomer.

The estimated quantity of waste generated by testing operations is based on individual batches of SASN. Table 5 summarizes the COPCs in the wastes treated at the TTF.

Table 5
Estimated Maximum Quantities of Constituents in SASN Wastes

Constituent	Approximate quantity in wastes from cleanup of aborted test using four batches of solution
Acetone	80 L [a, b]
Acetonitrile	6 L[b]
Nitric acid	0.25 L [c]
Silver nitrate	Trace [c]
SASN	1.092 kg [d]
PETN (optional)	0.04 kg [d]
Water	50 L
Solid items (e.g., paper, cloth, wood, cardboard)	50 kg

[a] In normal operations, some of the acetone would be applied to the test article, some would be used to flush lines, and approximately 25L of acetone would be present in the solution to be treated at the TTF.
[b] A solvent used in the formulation of the SASN slurry. Most or all of the material may be present in the waste from normal operations and from aborted tests.
[c] A byproduct generated in the formulation of the SASN slurry. Nitric acid will be present in the waste from normal operations and from aborted tests.
[d] In normal operations, all the explosive would be applied to the test article, and a trace would remain in the solution to be treated at the TTF. Some explosive would also be present on the solid items treated.
kg kilogram
L liter

Most test operations will require at least two batches of SASN; the largest may require four batches. PETN is used on rare occasions. Normal test operations result in a mixture containing acetone, water, nitric acid, acetonitrile, and traces of silver nitrate and SASN that requires treatment at the TTF. Aborted tests may result in the entire quantity of formulated SASN requiring treatment in addition to the normal wastes. The latter situation is shown in Table 5.

Of the COPCs identified above, silver is the only COPC remaining in the ash after treatment at the TTF. Analytical data for residual ash from TTF operations during 2004 indicate (a total of 2 samples), silver was detected at a maximum concentration of 550 milligrams per kilogram (mg/kg). Sandia/DOE used this concentration as the exposure point concentration when considering direct contact in the human health screening evaluation.

9.1.2 Unit Features

The TTF is described in Section 1.1 of this module. It is comprised of a steel burn pan with a cover, located inside a steel cage. The cage and burn pan rest on a steel-lined concrete pad. The cage and pad are surrounded by an earthen berm.

Eight situations present the potential for the release of RCRA-regulated waste to the environment surrounding the TTF. Each situation is addressed below:

- *Transfer of liquid wastes to the TTF burn pan.* Liquid wastes are transferred to the Unit through enclosed tubing equipped with secondary containment. No more than 20.8 gallons of liquid wastes are present in the Unit at any time, limiting the maximum release to 20.8 gallons. Spills on the ground or on the TTF pad will be wetted with water using spray hoses. When saturated with water, the explosive waste is stable. The spilled, wet waste can then be wiped or scooped up and deposited in the burn pan for destruction. Similarly, contaminated soils will be wetted, excavated, and placed in the TTF burn pan for treatment.

- *Transfer of solid items to the TTF burn pan.* Solid items such as explosive-contaminated paper and filters are contained and carried to the TTF burn pan by qualified Unit personnel. Solids that are spilled during transfer would be handled in the same manner as described above for liquids.

- *Runoff of potentially contaminated precipitation.* Once waste is transferred to the burn pan, treatment generally takes place immediately. In the unlikely event of spillage from the burn pan, waste material will be contained on the steel-lined concrete pad. Any precipitation or spillage in the steel-lined concrete pad drains through a settling basin and filter into the 157-gallon catch tank. In addition, no untreated waste or treated residue is allowed to remain for extended periods of time in the burn pan,

- *Discharge of potentially contaminated precipitation from the catch tank.* Water collected in the catch tank is managed as described in Section 1.2.1 of this module.

- *Evaporation of liquid wastes from the burn pan.* Untreated wastes are not allowed to remain for extended periods in the burn pan, and treatment generally takes place immediately during normal operations. If treatment cannot be performed, the burn pan lid is lowered. During treatment, the high vapor pressure and low flash point of the organic liquids in the waste, combined with the burner design (Section 1.1), maximize the destruction of organic constituents through combustion.

- *Emission of particulates and gaseous combustion products during treatment.* Combustion products are described in Section 8.2. Products of complete combustion include nonhazardous gases. As noted above, the high vapor pressure and low flash point of the organic liquids in the waste, combined with the burner design (Section 1.1), maximize combustion performance.

- *Kickout of untreated waste during treatment.* Kickout (described in Section 8.1.2) may occur, and has been occasionally observed on the steel-lined concrete pad. Kickout on the pad is identified during the post-treatment inspection, wetted, wiped up, and placed in the pan for treatment. Kickout on the berm would be handled in the same manner as described above for spilled liquids.

- *Emission of particulates following treatment.* Ash and particulate matter (residues) from the thermal treatment process are removed from the burn pan as soon as possible, and the pan is covered between treatment.

9.2 Potential for Deposition or Migration of Wastes or Waste Constituents (20 NMAC 4.1.500/40 CFR 264.601[a][7])

The potential for release of COPCs to the soil is directly associated with the operations and residual waste at the TTF. COPCs may be released to the surface soil as a result of wind-blown ash deposition. Wind can transport ash particles with adsorbed COPCs (silver) as suspended dust, capable of dry or wet deposition away from the site. The site is sparsely vegetated, and is susceptible to wind and water erosion. Surface runoff and biota are natural, but minor mechanisms of COPC transport. Water percolation through the soil is the primary mechanism for the transport and migration of COPCs in the subsurface soil and into groundwater.

It has been estimated that loss through evapotranspiration accounts for 95 percent of the total precipitation received at SNL/NM (Thomson and Smith 1985). Vegetation, although sparse at the site, will increase the rate of moisture loss from the subsurface soil through transpiration. As moisture evaporates from the soil surface, the direction of COPC movement near the surface may be reversed (i.e., upward transport) with capillary rise of the soil moisture.

Because of the arid nature of the environment at the TTF, characterized by low precipitation and high evapotranspiration rates, recharge to the water table at TA-III (measured at a solid waste management unit in north central TA-III) is insignificant under current climatic and vegetative conditions (Peace et al., 2002). Because groundwater at the TTF is approximately 500 feet below ground surface, the potential for COPCs to reach groundwater through the unsaturated zone above the water table is very low and can be ruled out as a transport pathway of concern.

Plant roots can access COPCs that are in the soil solution and transported to the aboveground tissues with the xylem stream. This may be a passive process, but active uptake (i.e., requiring energy expenditure on the part of the plant) or exclusion of some constituents in the soil solution may also take place. Aboveground tissues can absorb constituents directly from the air or by contact with dust particles. Constituents in plant tissues that are consumed by herbivores may pass through the gut and be returned to the soil in feces (at the site or transported from the site in the herbivore), or be absorbed into tissues, to be held, metabolized, or later excreted. The herbivore may be eaten by a primary carnivore or scavenger, and the constituents still held in the consumed tissues will repeat the sequence of absorption, metabolization, excretion, and consumption by higher predators, scavengers, and decomposers. The potential for transport of the constituents within the food chain is dependent upon both the mobility of the species that comprise the food chain and the potential for the constituent to be transferred across the links in the food chain. Inorganic COPCs (silver) at the TTF are elemental in form and are, therefore, not considered to be degradable via biotic or abiotic processes.

Table 6 summarizes the fate and transport processes that may occur at the TTF. Because the topography of the site is relatively flat and maintained for treatment operations, the potential for surface-water transport is low. Because winds in the Albuquerque area can be fairly strong in late winter and early spring, the potential for transport of COPCs in surface soil by wind is moderate. In both cases, however, the significance of these transport mechanisms is lessened by the fact that the principal COPC that would be released (i.e., silver) has been and is expected to be present in the residual ash at low initial concentrations. Because of the arid nature of the climate at the site, significant movement of water through the subsurface soil is unlikely and migration to groundwater is not expected to occur. The potential for food chain uptake is low because of the small size of the site, the disturbed nature of the habitat, and the

continued operations at the site. The potential for degradation is minimal due to the elemental and inorganic nature of the COPC (silver).

Table 6
Summary of Fate and Transport Mechanism at the TTF

Fate and Transport Mechanism	Existence at Site	Significance
Wind	Yes	Moderate
Surface runoff	Yes	Low
Migration to groundwater	No	None
Food chain uptake	Yes	Low
Transformation/degradation	No	None

9.3 Potential Risks to Human Health (20 NMAC 4.1.500/40 CFR 264.601[a][8], [b][10], and [c][6])

Sandia/DOE performed a screening human health risk assessment to estimate the potential risk to human receptors that may be exposed to residual COPCs at the TTF under the proposed operating conditions. The assessment indicates that exposure to the COPCs at the TTF poses no significant human health risks under current and anticipated future conditions, as discussed in the following sections. The assessment was performed in accordance with the "Risk Assessment Guidance for Superfund" (RAGS) (EPA, 1989) and "Technical Background Document for Development of Soil Screening Levels" (NMED, 2004).

9.3.1 Receptors

Building 6715 is occupied during research activities, and may be continuously occupied for several weeks or months, depending on the test schedule. Six buildings are occupied on a regular basis within the vicinity of the TTF. The remaining buildings are used sporadically for other tests or research activities, in the same manner as Building 6715. Table 7 summarizes the occupants of the TTF and the full-time occupants near the TTF.

The occupants of surrounding buildings are upwind from the TTF for a large percentage of the time. The wind rose on Figure 5 shows that overall prevailing winds at the TTF are from the east to southeast. However, winds in the area exhibit a diurnal pattern as described in Section 2.6: nighttime winds are from the southeast, and daytime winds are generally from the northwest to southwest (SNL, 2004). The daytime winds are reported in Table 7, because the buildings are occupied during the daytime.

Table 7
Full-Time Occupants of Buildings Near TTF in TA-III at SNL/NM

Building	Distance From TTF (feet)	Direction From TTF	Number of Full-time Occupants	Approximate Percent of Time Downwind from the TTF [a]
6715	20	N	10 [b]	5-10
6585	1250	E	152	5-10
6584	950	E	59	5-10
6536 [c]	795	SE	5	5-10
6530	820	SE	1	5-10
6710	1080	SW	8	2-12
6539 [d]	470	E	8	5-10

[a] Based on prevailing winds during daylight hours, based on data from 2001-2003. Range indicates some variation from year to year.
[b] The TTF may or may not be continuously occupied. Personnel who are present during tests and treatment have the highest potential for exposure
[c] Building is scheduled to be demolished by September 30, 2006.
[d] Building is scheduled to be operational by September 30, 2006.

9.3.2 Methodology

To evaluate potential human health risk at the TTF, maximum exposure point concentrations of the residual ash COPCs were compared to the corresponding occupational NMED soil screening levels (SSLs) (NMED, 2004). An individual SSL represents the soil concentration below which no significant adverse health effects are expected to occur from the assumed soil exposure pathways. The SSLs are fixed to conservative levels of risk (i.e., a cancer risk of 1×10^{-05} or a hazard quotient of 1.0). For metals and high explosives, the SSL uses three exposure pathways in the risk calculations:

- Incidental ingestion of chemicals in soil
- Dermal contact with chemicals in soil
- Inhalation of fugitive dust from soil.

The modeled duration of exposure assumes a continuous exposure during a 40-hour work week, 50 weeks each year, for a 25-year period.

The proposed current and future land use at the TTF is occupational under operating conditions. In addition, the onsite occupational receptors are not expected to exceed 50 days per year operational use at the TTF (i.e., the actual annual exposure period is less than 20% of the modeled exposure). Therefore, use of the occupational SSLs to calculate potential risk is highly conservative. Groundwater is not considered a viable exposure medium due to due the limited potential fate and transport soil-to-groundwater mechanisms operating at TA-III. Vapors released during treatment operations at the TTF do not to significantly contribute to the operational risk due to the following factors:

- The short duration of TTF treatment operations.
- The majority of the COPCs are incinerated during treatment.
- The treatment takes place outdoors and, therefore, the remaining vapors are quickly dispersed.
- Unit personnel are inside Building 6715 during treatment.
- Building 6715 is upwind from the TTF most of the time (Table 7).
- The nearest continuously-occupied building other than Building 6715 is 470 feet away from the TTF and is upwind most of the time (Table 7).

A hazard quotient (HQ) can be estimated using an exposure point concentration and a respective non-carcinogenic SSL, according to the following formula:

$$HQ = THQ \frac{EPC_i}{SSL_i}$$

Where:

- THQ = The target hazard quotient of 1.0
- EPC_i = Maximum exposure point concentration of $COPC_i$ detected in soil (mg/kg)
- SSL_i = Occupational SSL for $COPC_i$ detected in soil (mg/kg) based upon non-carcinogenic effects

None of the COPCs at the TTF are carcinogenic; therefore, no estimation of incremental lifetime cancer risk was conducted.

9.3.3 Results

Table 8 summarizes the COPC HQ values, based on comparing the maximum exposure point concentrations with the occupational SSLs.

Table 8
Results of the Human Health Risk Screening Analysis for the TTF

COPC	Occupational NMED SSL (mg/kg) [a]	Concentration (mg/kg) [b]	Hazard quotient	Incidental lifetime cancer risk
Silver[n]	5680	550	0.10	NA

[a] NMED 2004.
[b] concentration at point of maximum exposure, assuming direct contact
mg/kg milligram per kilogram.
n Non-carcinogenic metal.
NA Not applicable.

This screening human health risk assessment indicates the maximum concentration of silver in residual ash does not pose a potential significant risk to human health. The HQ calculated is 0.10, which is significantly less then the screening criteria of 1.0.

As noted in Section 9.3.2, the actual risks presented by treatment at the TTF and the residual ash are significantly less than those calculated due to the limited actual use of the TTF (i.e., it is only used 50 days per year, and the actual annual exposure is less than 20% of the modeled exposure). Therefore, under current and anticipated future conditions, exposure to COPCs at the TTF poses no significant human health risks.

9.4 Potential Damage to Animals, Vegetation, and Physical Structures (20 NMAC 4.1.500/40 CFR 264.601[a][9], [b][11], and [c][7])

Sandia/DOE evaluated the risk and potential damage to animals and vegetation through a screening ecological assessment, which examines the potential presence of endangered or threatened species at or around the TTF. The assessment indicates the expected impact of the TTF is minimal. No sensitive species have been identified at the TTF. The habitat quality of the TTF is poor (due to industrial land use patterns in the surrounding area), indicating that future habitation by sensitive species is unlikely.

Damage to physical structures (primarily Building 6715) that are in close proximity to the Unit could be caused by detonation of the explosive wastes treated in the TTF. However, the potential for such damage is effectively minimized through the design and operation of the Unit (described in Sections 1.2 and 8.1 of this Module).

9.4.1 Ecological Screening Assessment

The screening ecological assessment is limited to the potential threatened or endangered (T and E) species that may occur within the vicinity of the TTF. It includes: summary of the threatened and endangered (T and E) species survey for SNL/NM; the ecological receptors found at SNL/NM; and a summary of the receptors found at TA-III and, more specifically, the TTF as reported in *Sensitive Species Survey Results* (IT, 1995).

9.4.2 Survey Description

Sandia/DOE conducted biological field surveys and reviewed previously documented surveys to identify the presence of sensitive species and key habitat areas at each of the SNL/NM solid waste management units (being addressed through the Sandia/DOE Environmental Restoration (ER) program) that are located within the boundaries of KAFB.

The term "sensitive species" is used in these surveys refers to all state or federally listed threatened or endangered species, proposed or candidate species, and other species afforded special management consideration, thereby providing that species legal protection from actions that may jeopardize its further existence, by a state or federal resource management agency (e.g., U.S. Forest Service [USFS] Sensitive Species). Both plant and animal species are included under this definition. The actual or potential occurrence of permanent or transient sensitive species populations with the vicinity of the TTF is discussed.

The current list of species that fall under the definition of sensitive and that may occur on KAFB was compiled from information obtained from the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF), and the New Mexico Forestry and Resource Conservation Division (NMFRCD) of the Energy, Minerals and Natural Resources Department. Federal protection of a species (plant or animal) principally falls under the jurisdiction of the USFWS, although special management status may be granted to a species by other resource management agencies, such as the USFS and the Bureau of Land Management. In New Mexico, the state agencies empowered to identify and protect sensitive biological resources are the NMDGF (for vertebrate wildlife and some invertebrates) and the NMFRCD (for plants).

Other species designations are also recognized through the listing process. Those that are considered sufficient to warrant inclusion as a sensitive species are proposed species, C1 candidate species, and C2 candidate species. A proposed species is one for which a proposal for listing has been published in the Federal Register, but a final rule on the listing has not yet been made. Candidate species are those that are under review for possible listing. The C1 classification means that the USFWS believes sufficient information exists to support listing. The C2 classification means that insufficient information currently exists to support listing.

Similarly, the New Mexico Wildlife Conservation Act authorizes the NMDGF to designate species of wildlife native to New Mexico as endangered, thereby granting the species protection from further threats to their continued existence in New Mexico. Under this authority, the NMDGF uses two levels of classification, endangered group 1, and endangered group 2, which are equivalent to the endangered and threatened classifications (respectively) of the USFWS. The NMDGF also designates certain species and groups of wildlife (e.g., raptors and horned lizards) as "protected"; however, this designation is directed at protecting individuals of these species from unregulated hunting, killing, trapping, capture, or harassment and does not carry with it the criterion of threat of extinction or extirpation.

The NMFRCD has the authority to designate and protect plant species and varieties that are threatened by extinction or extirpation in New Mexico. The NMFRCD maintains four lists of plant species, each representing a separate level of classification. List 1 plants are designated endangered in New Mexico and are legally protected from unauthorized collection. List 1 plants include all plant species in New Mexico that are listed by the USFS as endangered or threatened as well as other species that may be threatened with extirpation from the state.

List 2 plants are either rare throughout their range or have a very restricted range, making them vulnerable to environmental perturbations. Although List 2 plants are monitored for change in status, they are not protected under the New Mexico Endangered Plant Species Act. List 3 plants are rare plants that are currently under review for listing. List 4 plants are those that, after review, have been dropped from consideration at this time. As with the List 2 plants, neither List 3 nor List 4 plants are protected under the New Mexico Endangered Plant Species Act. Plants on the NMFRCD Lists 1, 2, and 3 are considered to be sensitive species because all are either known to be vulnerable to disturbance or are of uncertain sensitivity.

9.4.3 Receptors Found at SNL/NM

There are no federally listed T or E species known to occur within KAFB. The federally endangered peregrine falcon (*Falco peregrinus*) could potentially occur in the mountainous areas of KAFB; however, the likelihood is low due to poor habitat quality for this species. The federally threatened Mexican spotted owl (*Strix occidentalis lucida*) occurs in canyons similar to Sol se Mete and Lurance Canyons in eastern KAFB; however, a special survey of these canyons by Roger W. Skaggs found the habitat conditions to be unsuitable and concluded that the probability of this species occurring in these canyons is low. The federally endangered black-footed ferret (*Mustela nigripes*) was once native to central New Mexico but has not been recorded in the state in recent years.

Two candidate species (C2) for federal listing are known to occur on KAFB. These are the grama grass cactus (*Pediocactus papyracanthus*) and the Texas horned lizard (*Phrynosoma cornutum*). The grama grass cactus is also a State-listed endangered plant species (List 1) and a USFS sensitive plant and has been recorded throughout the lower elevations of KAFB, from the base of the Manzanita Mountains to the fence marking the western boundary of the base. The Texas horned lizard has been observed at the North Thunder Range and in Lurance Canyon. As a horned lizard, this species is protected by state law from collection but has no other state-granted special status.

Seven other federal candidate species are considered as potentially occurring on KAFB but have not been recorded on KAFB. These include three birds, three bats, and one rodent species. Three of these species, the southwestern willow flycatcher (*Empidonax traillii extimus*), the spotted bat (*Euderma maculatum*), and the "New Mexican" meadow jumping mouse (*Zapus hudsonius luteus*), are also listed by the NMDGF as endangered (group 2). All three of the birds -- the "Apache" northern goshawk (*Accipiter gentilis apache*), the ferruginous hawk (*Buteo regalis*), and the southwestern willow flycatcher -- are likely to be migrants on KAFB, if they occur at all. The northern goshawk typically nests at higher elevations and in denser coniferous forests than those provided by the Manzanita Mountains, although it winters at lower elevations, usually along riparian zones. Although a ferruginous hawk was observed soaring over the South Thunder Range during surveys, nesting, roosting, or feeding by this species on KAFB has not been observed. The lack of dense willow stands (which are the preferred nesting habitat for the southwestern willow flycatcher), makes it an unlikely breeding species on KAFB. The three species of bats listed as federal candidate species (C2) potentially use the mine shafts in the Manzanita Mountains as roosts, although the small number of records for the greater western mastiff bat (*Eumops perotis californicus*) in New Mexico make it very unlikely to occur in these mine shafts. The "New Mexican" meadow jumping mouse has been recorded along the Rio Grande and in higher montane meadows, but suitable habitat for this species (thick grass with high soil moisture) does not occur on KAFB.

Two species of birds, the gray vireo (*Vireo vicinior*) and Baird's sparrow (*Ammodramus bairdii*), are listed by the NMDGF as endangered (group 2) but have no federal status. A gray vireo was observed in Sol se Mete Canyon but was probably a migrant. Past observational records indicate that the Baird's sparrow is unlikely in the area of KAFB.

Three State-listed endangered plants (List 1) are known to occur on KAFB. These are the grama grass cactus, the Wright's pincushion cactus (*Mammillaria wrightii*), and the visnagita cactus (*Neolloydia intertexta*). Two other State-listed endangered plants, Simpson's cactus (*Pediocactus simpsonii*) and Great Plains lady tresses (*Spiranthes magnicamporum*), are possible but have not been recorded on KAFB. The latter, an orchid, is unlikely due to the rarity of moist habitats required for this species.

One State-listed rare and sensitive plant (List 2) is known to occur on KAFB, and two others may potentially occur. The Santa Fe milkvetch (*Astragalus feensis*) has been recorded in the North Thunder Range area. The cyanic milkvetch (*Astragalus cyaneus*) and Plank's catchfly (*Silene plankii*) are sporadic but locally common on dry slopes along the Rio Grande Valley. Neither has been observed on KAFB.

Finally, only one species under review by the NMFRCD (List 3) may potentially occur on KAFB. The strong prickly pear (*Opuntia valida*) occurs along the foothills of the Sandia Mountains and has typically been treated as a form of the common and highly varied Engelmann or "sprawling" prickly pear (*Opuntia phaeacantha*). Its taxonomic elevation to species is not widely accepted and requires further study. It has not been recorded on KAFB but may be easily overlooked due to the prevalence of Engelmann prickly pear.

9.4.4 Sensitive Species Found at TA-III

TA-III was surveyed for sensitive species during the spring and summer of 1992 and 1993. This survey effort included all ER Project sites that are within TA-III, as well as an area northwest of TA-III. Portions of the west central part of TA-III have been identified as Priority 1 habitat for grama grass cacti, indicating that the species occurs in vigorous populations in the area of TA-III.

Although no other sensitive species have been recorded on SNL/NM ER Project sites in TA-III, the potential occurrence of some cannot be ruled out. Among the plants, both the Santa Fe milkvetch and Simpson's cactus are possible in the habitats of the lower foothills and may have eluded detection. The Texas horned lizard, which has been recorded in Lurance Canyon, could occur in the grassland sites within this canyon and on the mesa. Finally, the abandoned mines in the eastern part of KAFB may contain bats, among which both the spotted bat and occult little brown bat are possible occupants. However, none of these are expected to occur at the TTF.

No sensitive species have been identified at the TTF. Additionally the habitat quality of the TTF is poor, indicating that future habitation by sensitive species is unlikely to occur. Therefore, a quantitative assessment of potential risk to ecological receptors at the TTF is not warranted at this time.

9.5 Monitoring (20 NMAC 4.1.500/40 CFR 264.601 - 602)

Sandia/DOE do not routinely perform environmental monitoring at the TTF because of the sporadic nature of the operations and the minimal effect of the operations on human health and the surrounding environment (discussed in Sections 9.3 and 9.4 of this module). However, as discussed in Sections 2.6 and 9.0, Sandia/DOE perform routine environmental monitoring in the vicinity of the TTF. The results of the activities are provided in annual environmental monitoring reports (SNL/NM 2004). Contamination attributable to the TTF has not been detected during environmental monitoring activities at SNL/NM.

10.0 REFERENCES

DOE, see U.S. Department of Energy

EPA, see U.S. Environmental Protection Agency.

Gram, Inc, 1995. "Conceptual Geological Model of the Sandia National Laboratories and Kirtland Air Force Base, Sitewide Hydrogeologic Characterization Project," Organization 7584, Environmental Restoration Program, Sandia National Laboratories, Albuquerque, New Mexico.

IT Corporation, 1995, "Sensitive Species Survey Results, Environmental Restoration Project, Sandia National Laboratories/New Mexico", IT Corporation, Albuquerque, New Mexico, February, 1995

National Oceanographic and Atmospheric Administration (NOAA), 1990. Local Climatological Data, Annual Summary with Comparative Data, Albuquerque, New Mexico.

New Mexico Environment Department (NMED), 1994, "Sandia National Laboratories/ New Mexico Hazardous Waste Facility Operating Permit Number NM5890110518-2," effective November 4, 1994, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, Santa Fe, New Mexico.

New Mexico Environment Department (NMED), 2004. "Technical Background Document for Development of Soil Screening Levels, Revision 2.0" New Mexico Environment Department, Hazardous Waste Bureau, Ground Water Quality Bureau, and Voluntary Remediation Program, Santa Fe, New Mexico, February, 2004.

NMED, see New Mexico Environment Department.

NOAA, see National Oceanographic and Atmospheric Administration

Peace, J.L., Goering, T.J., and M.D. McVey, 2002. "Report of the Mixed Waste Landfill Phase 2 RCRA Facility Investigation, Sandia National Laboratories, Albuquerque, New Mexico". SAND2002-2997, prepared by Sandia National Laboratories for the U.S. Department of Energy under Contract DE-AC04-94AL85000.

Sandia National Laboratories, New Mexico (SNL/NM), 1998. "Sitewide Hydrogeologic Characterization Project 1995 Annual Report, Rev.", Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 1999. "Summary Report of Groundwater Investigations at TA V, Operable Units 1306 and 1307," Vol. 1 and 2, Prepared for the US Department of Energy Under contract DE-AC04-94AL85000, by Environmental Restoration for TAs and Miscellaneous Sites, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2001a. "Environmental Restoration Project, Sandia National Laboratories/New Mexico, in Association with The US Department of Energy Kirtland Area Office, Draft Long-Term Environmental Stewardship Plan". Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2001b. "Draft Long-Term Monitoring Strategy for Groundwater". Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2002, "Calendar Year 2001 Annual Site Environmental Report", SAND 2002-2415, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories, New Mexico (SNL/NM), 2003, "Fiscal Year 2002, Annual Groundwater Monitoring Report" Report # 75-1077-5, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2004a, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 7.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 2004b, "Calendar Year 2003 Annual Site Environmental Report", SAND 2004-2813, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

Thomson, B.M. and G.J. Smith, 1985. "Investigation of Groundwater Contamination Potential at Sandia National Laboratories, Albuquerque, NM," In Proceedings of the Fifth DOE Environmental Protection Information Meeting, Albuquerque, New Mexico, November 6-8, 1984, CONF-841187, pp. 531–540.

U.S. Department of Energy, 1999. "Final Site-Wide Environmental Impact Statement for Sandia National Laboratories/New Mexico" (DOE/EIS-0281), Albuquerque Operations Office, Albuquerque New Mexico

U.S. Environmental Protection Agency (EPA), 1989. "Risk Assessment Guidance for Superfund, Vol. I: Human Health Evaluation Manual," EPA/540-1089/002, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C.

Wildin, Maurice W., 1986. "Investigations Pertinent to Ignition of Sprayed Layers of Silver Acetylide Silver Nitrate". SAND 1985-1859, Sandia National Laboratories, Albuquerque, New Mexico.

This page intentionally left blank.

Sandia National Laboratories/New Mexico Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility Part B Permit Application

Module III

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... CWMF-iv
LIST OF FIGURES ..... CWMF-v
ACRONYMS AND ABBREVIATIONS ..... CWMF-vii
1.0 GENERAL UNIT OPERATIONS CWMF-3
1.1 Designated Waste Management Areas CWMF-3
1.1.1 Building 6920 ..... CWMF-4
1.1.2 Building 6921 ..... CWMF-7
1.1.3 Building 6925 ..... CWMF-8
1.1.4 Building 6926 ..... CWMF-8
1.1.5 RMWMF Modular Storage Buildings (TP150 and TP153) CWMF-9
1.1.6 CWMF Modular Storage Buildings CWMF-10
1.1.7 Outdoor Waste Storage Area CWMF-10
1.2 Unit Operations CWMF-10
1.2.1 Operation of Containment Systems CWMF-10
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes CWMF-11
1.2.3 Preparedness and Prevention CWMF-13
1.2.3.1 Required Equipment CWMF-13
1.2.3.2 Testing and Maintenance of Equipment CWMF-14
1.2.3.3 Access to Communications or Alarm Systems CWMF-14
1.2.4 Hazards Prevention CWMF-15
1.2.4.1 Preventing Hazards in Unloading CWMF-15
1.2.4.2 Preventing Runoff or Flooding CWMF-16
1.2.4.3 Preventing Contamination of Water Supplies CWMF-16
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages CWMF-16
1.2.4.5 Preventing Undue Exposure CWMF-17
1.2.4.6 Preventing Releases to the Atmosphere CWMF-17
1.3 Container Storage CWMF-18
1.3.1 Container Types and Labeling CWMF-18
1.3.2 Container Handling CWMF-18
1.3.2.1 Condition of Containers CWMF-18
1.3.2.2 Aisle Space and Storage Configuration CWMF-18
1.3.2.3 Compatibility of Waste with Containers CWMF-19
1.3.2.4 Presence of Liquids in Containers CWMF-19
1.4 Treatment Operations CWMF-19
2.0 UNIT DESCRIPTION AND INFORMATION CWMF-21
2.1 Security Procedures And Equipment CWMF-21
2.1.1 Barriers and Means to Control Entry CWMF-21
2.1.2 Warning Signs CWMF-22
2.2 Traffic Pattern, Volume, and Controls CWMF-22
2.2.1 Traffic Patterns CWMF-22
2.2.2 Traffic Volumes CWMF-23
2.2.3 Traffic Control Signals CWMF-23

TABLE OF CONTENTS (Continued)

2.3 Unit Location Information CWMF-23
2.3.1 Seismic Standard CWMF-23
2.3.2 Floodplain Standard CWMF-23
2.4 Topographic Maps CWMF-24
2.5 Groundwater Monitoring CWMF-25
3.0 WASTE ANALYSIS PLAN CWMF-26
4.0 INSPECTION PLAN CWMF-27
5.0 PERSONNEL TRAINING CWMF-32
6.0 CONTINGENCY PLAN and emergency response CWMF-33
7.0 CLOSURE PLAN CWMF-51
7.1 Unit Description CWMF-51
7.2 Estimate of Maximum Waste in Storage CWMF-53
7.3 Closure Conditions CWMF-53
7.4 Closure Activities and Schedule CWMF-54
7.4.1 Closure Activities CWMF-55
7.4.2 Closure Schedule CWMF-55
7.5 Sampling and Analysis Plan CWMF-55
7.5.1 Sampling and Analysis Scope CWMF-56
7.5.2 Sampling Methodology CWMF-56
7.5.2.1 Sample Locations CWMF-56
7.5.2.2 Sample Collection CWMF-56
7.5.2.3 Sampling Equipment CWMF-61
7.5.2.4 Sample Equipment Decontamination CWMF-61
7.5.2.5 Sample Identification CWMF-61
7.5.2.6 Sample Preservation and Holding Time CWMF-62
7.5.3 Demonstration of Clean Closure CWMF-62
7.5.4 Quality Control CWMF-63
7.5.5 Data Management and Reporting CWMF-63
7.6 Decontamination and Verification Procedures CWMF-63
8.0 TREATMENT PLAN CWMF-64
8.1 Treatment Operations CWMF-64
8.1.1 Chemical Deactivation CWMF-65
8.1.2 Thermal Deactivation CWMF-67
8.1.3 Amalgamation CWMF-67
8.1.4 Stabilization CWMF-68
8.1.5 Macroencapsulation CWMF-68
8.1.6 Physical Treatment CWMF-69
8.2 Preventing Releases to the Atmosphere CWMF-70
8.2.1 Subpart AA CWMF-70
8.2.2 Subpart BB CWMF-71
8.2.3 Subpart CC CWMF-71
8.3 Treatment Effectiveness CWMF-71
8.3.1 Chemical Deactivation CWMF-71
8.3.2 Thermal Deactivation CWMF-72
8.3.3 Amalgamation CWMF-72
8.3.4 Stabilization CWMF-72

TABLE OF CONTENTS (Concluded)

8.3.5 Macroencapsulation CWMF-72
8.3.6 Physical Treatment.....CWMF-72
9.0 REFERENCES.....CWMF-74

LIST OF TABLES

Table No.	Title
1	Storage Capacity for South Bay of Building 6920, Consolidated Waste Management Facility
2	Fire Suppression Systems at the Radioactive and Mixed Waste Management Facility
3	Fire Suppression Systems at the Consolidated Waste Management Facility
4	Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency
5	Consolidated Waste Management Facility Inspection Criteria and Frequency
6	Radioactive and Mixed Waste Management Facility Emergency Equipment and Locations
7	Consolidated Waste Management Facility Emergency Equipment and Locations
8	Radioactive and Mixed Waste Management Facility, Consolidated Waste Management Facility, Emergency Coordinator List
9	Summary of Pre-Wash Sampling Program
10	Radioactive and Mixed Waste Management Facility, Summary of Post-Wash Sampling Program
11	Consolidated Waste Management Facility, Summary of Post-Wash Sampling Program

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility at Sandia National Laboratories/ New Mexico
2	Location of the Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility in Technical Area III
3	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Unit Layout
4	Radioactive and Mixed Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
5	Consolidated Waste Management Facility, Building 6920, Resource Conservation and Recovery Act-Regulated Waste Management Areas
6	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, Resource Conservation and Recovery Act-Regulated Waste Management Areas
7	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Area
8	Consolidated Waste Management Facility, Buildings 6925 and 6926, Resource Conservation and Recovery Act-Regulated Waste Management Area
9	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Traffic Route and Controls
10	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Topographic Map
11	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Access Control Features
12	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Drainage Control Features
13	Radioactive and Mixed Waste Management Facility, Evacuation Routes
14	Consolidated Waste Management Facility, Evacuation Routes
15	Radioactive and Mixed Waste Management Facility, Emergency Response and Access Information

LIST OF FIGURES (Concluded)

Figure No.	Title
16	Consolidated Waste Management Facility, Emergency Response and Access Information
17	Radioactive and Mixed Waste Management Facility, Building 6920, Closure Grids
18	Consolidated Waste Management Facility, Building 6920, Closure Grids
19	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Building 6921, Closure Grids
20	Radioactive and Mixed Waste Management Facility, Buildings 6925 and 6926, Closure Grids
21	Consolidated Waste Management Facility, Buildings 6925 and 6926, Closure Grids
22	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Modular Storage Buildings, Closure Grids
23	Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility, Thermal Deactivation Unit, Exterior Bottom View

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2XX, Section 2*XX.XX*
CWMF	Consolidated Waste Management Facility
CMU	concrete masonry unit
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot/feet
ft^2	square foot/feet
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
lb/ft^2	pound(s) per square foot/feet
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RMWMF	Radioactive and Mixed Waste Management Facility
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	Technical Area
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO RADIOACTIVE AND MIXED WASTE MANAGEMENT FACILITY/ CONSOLIDATED WASTE MANAGEMENT FACILITY PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Radioactive and Mixed Waste Management Facility (RMWMF)/Consolidated Waste management Facility (CWMF) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage and treatment operations at the existing RMWMF and at the future CWMF. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the “Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application,” hereinafter referred to as the General Part B. Together, information provided in this module, in the General Part B, and in the appendices to the General Part B meet the applicable requirements for the CWMF that are specified in 20 NMAC 4.1.500/40 CFR 264 [10-1-03], and 20 NMAC 4.1.900/40 CFR 270 [10-1-03].

Sandia/DOE also prepared the “Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0” (SNL/NM, 2004), hereinafter referred to as the General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the General Part B and Unit-specific Part B modules, including this CWMF Part B Permit Application.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Consolidated Waste Management Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

Sandia/DOE currently operate the existing RMWMF under interim status in accordance with the terms of the most recent Part A submitted to the New Mexico Environment Department (NMED) (November 29, 2004) and the most recent Part B permit request submitted to NMED (November 29, 2004).

Sandia/DOE plan to make physical modifications to the existing RMWMF during the next three years to increase capacity, and the modified facility will be called the CWMF. The existing RMWMF occupies 3.11 acres in the southeast corner of Technical Area (TA)-III; the CWMF will occupy the same space. The RMWMF is a fenced compound with several buildings and waste management areas (WMAs). Operations include storage of RCRA-regulated wastes in containers, repackaging wastes, and treating the wastes as needed to render them more suitable for shipment to off-site treatment and/or disposal facilities. Sandia/DOE will increase capacity of some of the existing WMAs, add two WMAs, and continue RMWMF operations

(storage, repackaging, and treatment of RCRA-regulated wastes) at the future CWMF. All of the RCRA-regulated wastes listed in the General Part A may be managed at the existing RMWMF and at the future CWMF.

The physical modifications are scheduled to occur in stages over the next three years. The existing (RMWMF) waste management operations will continue during that time. Individual buildings and WMAs will not be used while they are undergoing renovation that affects operations in the WMAs. Operations will resume in each WMA when modifications are complete. Both the existing and future facilities and operations are described in this application.

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the existing RMWMF and future CWMF waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the General Part B.

Specific information in this section regarding Unit operations includes: containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the General Part B, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [10-1-03].

1.1 Designated Waste Management Areas

The location of the CWMF/RMWMF at SNL/NM is shown on Figure 1. The location of the CWMF/RMWMF within TA-III is shown on Figure 2. The existing RMWMF has six designated WMAs; the CWMF includes two additional WMAs (Figure 3). Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence to the north, east, and west of Building 6920) are included in the RMWMF and the CWMF. The CWMF also includes two additional modular storage buildings.

In each RMWMF and CWMF WMA (except where noted), containers holding RCRA-regulated liquid wastes are stored on portable spill pallets or pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives, solvents, and other liquids. The containers of liquids (typically 5- to 55-gallon capacity) are stored on the grating. Any liquids released from the containers drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [10-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3) [10-1-03].

Each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

RCRA-regulated wastes are typically stored inside one of the buildings or inside transportainers in the outdoor storage area. The containers are protected from precipitation by the buildings and transportainers, and by the slope of the asphalt pavement and concrete pads outside the buildings that direct storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(4).

The following sections provide descriptions of the features, location and capacity of each WMA. Treatment practices are summarized in Section 1.4 and discussed in detail in Section 8.0 of this module.

1.1.1 Building 6920

The principal structure at the existing RMWMF and the future CWMF is Building 6920. The CWMF modifications include renovating the interior of the building, replacing most of the utility systems, and adding new rooms to the east and west ends of the building. The additions include mechanical and electrical rooms on the west end of the building, and new storage and work areas on the east end of the building.

The existing floor plan for Building 6920 is presented on Figure 4. The CWMF floor plan for Building 6920 is shown in Figure 5. Existing and future WMAs in Building 6920 include waste staging, repackaging, and storage areas, and waste treatment areas. Building 6920 is a single-story concrete and steel structure housing approximately 5,000 square feet of RCRA-regulated waste management area. The floors are 6-inch (in.) reinforced, sealed concrete on compacted subgrade sloped to sumps with no outlets. Walls are 8-in. load-bearing concrete masonry unit (CMU) with prefinished metal building panels in some areas. Nongrouted cells of the 8-in. CMU exterior walls are filled with vermiculite insulation. The staging area at the east end of the building has 14-foot (ft) high reinforced concrete walls. The exterior walls are 2-ft thick, interior walls are 1-ft thick, and the shared wall between the north and south parts of the building is 1.5-ft thick. Inner partitions are 8-in. reinforced CMU.

The roof consists of 24-in. deep steel joists with a 1.5 in. metal deck with 3-in. rigid insulation and a single-ply roof membrane. The roof system is a single-ply fully adhered elastomeric system, installed over rigid insulation with factory-laminated fiberglass-coated skin on both sides, and attached to the deck with metal fasteners. Ceilings are exposed and painted.

Building 6920 consists of two bays (north and south) that are isolated from each other by a wall, with an interior airlock and office area near the west end of the building.

The additions on the east and west ends of the building will be constructed with pre-manufactured metal walls on a reinforced, sealed concrete slab on compacted subgrade. The roofing system will be the same type as on the existing building. The additional storage and work rooms on the east end of the building will include approximately 1,100 sq ft of area.

There are (and will be) several exterior personnel doors and four cargo entrances to the building, as well as separate entrances to the exterior mechanical and electrical rooms. The personnel doors provide access to the north and south bays and to all sides of the building. There is a cargo entrance (i.e., roll-up door) at each end of each bay.

North Bay

In the existing RMWMF, waste treatment, storage, and repackaging are performed in the north bay of Building 6920 (Figure 4). The storage capacity of the existing north bay is approximately 6,000 gallons of RCRA-regulated wastes. Treatment currently includes physical treatment and macroencapsulation.

In the future CWMF, operations in the renovated north bay will include repackaging, storage, and treatment (physical treatment, macroencapsulation, chemical and thermal deactivation, stabilization, and amalgamation) of RCRA-regulated wastes. The new area at the east end of the building will be used for storage of RCRA-regulated wastes in containers. The capacity of the renovated north bay and new work areas will be approximately 19,070 gallons.

The floor in the north bay currently slopes from the doorways toward one or more shallow (6-in.-deep) blind sumps covered with grating. Containers of liquid RCRA-regulated wastes are stored on portable spill pallets or pans. Floors, (including the sumps), and the walls in the WMAs of Building 6920 are sealed with a chemical-resistant epoxy, which withstands degradation by chemical substances and resists wear from forklift traffic. The sumps and pallets meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4). This secondary containment configuration will be maintained in the CWMF.

The existing RMWMF north bay includes two enclosed areas (shown in Figure 4) that are equipped with a negative-pressure exhaust system. The exhaust passes through a high-efficiency particulate air (HEPA) filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The CWMF north bay will include two new enclosed areas where personnel will perform repackaging and treatment operations, and some storage. The remaining areas in the north bay will be used for storage. All of the north bay, including the enclosed areas, will be equipped with a negative-pressure exhaust system. The exhaust will pass through a high-efficiency particulate air (HEPA) filter train before being released to the environment through an exhaust stack, in the same manner as the current exhaust system. The filters effectively remove particulates entrained in the air flow.

Two commercially available fume hoods with negative-pressure ventilation systems will be installed in one of the enclosed areas in the CWMF north bay. Two other local ventilation systems will be installed in the other enclosed area. The exhaust from all local systems will be included with the general exhaust from the north bay.

South Bay

In the existing RMWMF, waste treatment, storage, and repackaging are performed in the south bay of Building 6920 (Figure 4). Wastes are stored in the main bay and in the airlocks at either end. Treatment in the south bay currently includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment. The current storage capacity of the south bay and airlocks is 7,420 gallons.

In the future CWMF, operations in the renovated south bay will include repackaging and storage of RCRA-regulated wastes. In this area, containers of RCRA-regulated wastes will be stored,

lab packs will be prepared by placing small containers in to larger containers filled with absorbent material, liquid wastes will be combined and bulked into larger containers, and other wastes will be packaged into appropriate containers for shipment to off-site treatment, storage and disposal facilities (TSDFs).

The renovated south bay will include the existing main area and two airlocks, eight new storage bays and a new enclosed room (bulking room) used for repackaging and some storage of RCRA-regulated wastes, as shown on Figure 5. Repackaging may also take place in any area of the south bay.

Wastes will be stored in the new bays, the main south bay, and the airlocks at either end. The total storage capacity of the airlocks will be 15,600 gallons. Containers of liquid RCRA-regulated wastes will be stored on portable spill pallets or pans in the airlocks. The storage capacity of the main area, new storage bays, and enclosed bulking room is based on the available secondary containment provided by the building in these areas, as described below.

The individual storage bays in the south bay will be separated by 10-foot-high CMU walls. All the bays and the enclosed room will have recessed concrete floors covered with metal grating. Waste containers will be placed on shelves over the metal grating in the bays and enclosed room. The load-bearing capacity of the grating and the floor will be 320 pounds per square foot (ft^2), and 2000 pounds per ft^2, respectively. Several additional sumps are located along the southern wall of the main south bay in the existing RMWMF; these sumps are also covered with metal grating and will remain in the renovated facility. The entire floor of the south bay and the wall surfaces inside each recessed area (up to the grating) will be covered with an epoxy-based chemical-resistant coating. The coating will form a continuous protective barrier over the concrete and protect the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

Secondary containment will be provided by the recessed areas. The eight storage bays will vary in size, secondary-containment capacity, and waste-container capacity. The secondary containment capacity in each storage bay and in the enclosed room will be provided by the recessed area. For example, the recessed area in Bay H will be 9 ft wide by 11 ft long and 4 inches deep, with a net capacity of 233 gallons (part of the volume will be occupied by supports for the grating). The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus the storage capacity in Bay H will be 2,330 gallons, 42 55-gallon drums, or an equivalent volume. The secondary containment will meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4).

Based on the secondary containment capacity, the storage bays, enclosed (bulking) room and main south bay will be limited to the following maximum storage capacity of 55-gallon drums, or equivalent volume, as listed in Table 1.

Table 1
Storage Capacity for South Bay of Building 6920,
Consolidated Waste Management Facility

Bay No.	Secondary Containment Capacity, Gallons	Maximum Number of 55-Gallon Drums Stored[a]
A	159	28
B	159	28
C	233	42
D	181	32
E	129	23
F	129	23
G	181	32
H	233	42
Bulking Room	337	61
South Bay	499	90

[a] Actual limit will be various containers with total volume equivalent to stated number of 55-gallon drums

In the existing RMWMF, there are four small rooms in the south bay (Figure 4) where personnel typically conduct treatment and storage. One commercially available fume hood with a negative-pressure ventilation system is located in one of these rooms. Another local ventilation system is located in another of the rooms. The exhaust from both of these systems is combined and passes through a HEPA filter train before being released to the environment through the exhaust stack. The filters effectively remove particulates entrained in the air flow of each system.

Two commercially available fume hoods will be installed in the enclosed (bulking) room in the CWMF south bay. Each fume hood will be equipped with a negative pressure ventilation system. All of the south bay, including the enclosed room, will be equipped with a negative-pressure exhaust system. The exhaust will be released to the environment through the exhaust stack.

1.1.2 Building 6921

The Waste Assay Facility (Building 6921) is located east of Building 6920 (Figure 3) in the RMWMF. The CWMF modifications include some modifications to the utility systems and will not affect the WMAs or waste management activities.

Unit personnel treat, repackage, and store wastes in the WMAs. The Building 6921 floor plan is presented on Figure 6. Building 6921 is a single-story structure constructed with interior walls of 8-in. CMU and metal studs. The roof is comprised of steel bar joists with metal decking, rigid insulation, and single-ply membrane roofing. The floors are 6-in.-thick concrete slab-on-grade. The floors in the assay area on the south side of the building are sealed with a chemical-resistant epoxy that extends up the walls for 6 in. The floors in the other two WMAs are also coated. The total WMA is approximately 1,450 ft^2 with a maximum capacity of approximately 7,810 gallons.

Building 6921 (waste treatment area, shown on Figure 5) is equipped with a commercially available fume hood with a negative-pressure ventilation system. The ventilation air flow from the hood passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

Treatment in Building 6921 includes chemical and thermal deactivation, stabilization, amalgamation, macroencapsulation, and physical treatment.

1.1.3 Building 6925

Building 6925 is used for storage and some treatment of RCRA-regulated waste at the RMWMF. Treatment consists of macroencapsulation (Building 6925).

The CWMF modifications to this building include some modifications to the utility systems and will not affect the WMAs or waste management activities.

The floor plan for RMWMF Building 6925 is presented on Figure 7. The CWMF floor plan is the same as the RMWMF floor plan; the floor plan for CWMF Building 6925 is presented on Figure 8. Building 6925 has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. It is a prefabricated steel building erected on a reinforced concrete slab floor and foundation. The concrete floors are covered with chemical-resistant epoxy coating. Steel rollup doors are located on the south and east walls of the building. Personnel doors are located on the east, south, and west sides of the building.

1.1.4 Building 6926

Building 6926 is used for storage of RCRA-regulated waste at the RMWMF. The CWMF modifications to this building include renovating the interior of the building and modifying the utility systems.

The floor plan for RMWMF Building 6926 is presented on Figure 7. Existing Building 6926 has a total storage area of approximately 4,000 ft^2 with a maximum capacity of approximately 83,160 gallons. It is a prefabricated steel building erected on a reinforced concrete slab floor and foundation. The concrete floors are covered with chemical-resistant epoxy coating. Steel rollup doors are located on the south and west walls of the building. Personnel doors are located on the east, south, and west sides of the building.

In the future CWMF, the roll-up doors and personnel doors will be located on the east and west ends of the building. The renovated building will contain seven separate and recessed waste storage compartments for storage of containers of RCRA-regulated wastes, as shown on Figure 8. Six of the bays will have recessed reinforced concrete floors covered with metal grating. The remaining bay will have a reinforced concrete floor and will be surrounded by a concrete curb inside the existing wall. The bays will be separated by 7-foot-high CMU walls. The entire floor (all bays, walkways, and curbs) and the wall surfaces inside each recessed area (up to the grating) will be covered with an epoxy-based chemical-resistant coating. The coating will form a continuous protective barrier over the concrete and protect the floor from the effects of solvents and corrosive chemicals that may be released from the containers.

Waste containers will be placed on the metal grating over the secondary containment area in the six small bays. Containers of RCRA-regulated waste will be placed on pallets on the floor in the large bay. The load-bearing capacity of the of the grating and the floor will be 700 pounds per square foot (ft^2), and 2,000 pounds per ft^2, respectively.

Secondary containment will be provided by the recessed areas. Each of the six small bays (Bays 1, 2, 3, 5, 6, and 7) will be 14.33 ft wide by 12.67 feet long and 4 inches deep, with a net capacity of 332 gallons (part of the volume will be occupied by supports for the grating). The secondary containment capacity is 10% of the stored volume or the volume of the largest container; thus the storage capacity in each small bay will be 3,320 gallons, 60 55-gallon drums, or an equivalent volume.

The large bay will be 46.67 feet long by 38 feet wide with a 5.75-inch curb; the net containment capacity will be 5,349 gallons (part of the volume will be occupied by entry ramps and storage pallets. The storage capacity will be 53,492 gallons, 972 55-gallon drums, or an equivalent volume.

The total capacity of CWMF Building 6926 will be approximately 73,419 gallons. The secondary containment will meet the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b) (1-4).

1.1.5 RMWMF Modular Storage Buildings (TP150 and TP153)

There are two modular storage buildings located west of Building 6920 that are used for storage of RCRA-regulated reactive and ignitable/flammable wastes (Figure 3).

The exterior dimensions of each modular storage building are 23-ft long, 9-ft wide, and 8.6-ft high. The structures are constructed for a snow loading of 40 pounds per square foot (lb/ft^2), Uniform Building Code seismic Zone 3, and a wind loading with exposure C open area at 110 miles per hour. The walls and roof of each structure are rated for a 2-hour fire. Each building has two 5-ft wide doors, and each door has a single-point locking mechanism with inside safety release. Each building is vented. The inside walls and ceiling of each building are covered with an epoxy coating which is resistant to reactive wastes.

Each modular storage building has a 5.5-inch-deep integral spill containment reservoir under the entire building; the capacity is 650 gallons. The secondary containment capacity is 10% of the stored volume of the contents of the largest container; thus, the storage capacity based on secondary containment is 6500 gallons. The secondary containment meets the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(1-4). The reservoirs are constructed of 10-gauge American Society for Testing and Materials A36 steel and are coated with a chemical-resistant epoxy. The building floors are epoxy-coated steel grating. Each building rests on structural supports that elevate it and allow visual checks of the underside of the spill containment reservoir if there is evidence of deterioration on the interior surfaces. The maximum storage capacity at each building is not based on secondary containment. It is approximately 1,100 gallons.

1.1.6 CWMF Modular Storage Buildings

Two additional modular storage buildings will be located in the northeast corner of the CWMF compound. These buildings will be the same as or very similar to the existing buildings. They will each be constructed of welded 10- to 12-gauge steel with integral spill containment reservoirs under the entire building. Each will be approximately 20 to 25 feet long, 8 to 10 feet wide, and 8 to 10 feet high with two or three doors. The interior floors and the interior surfaces of the containment reservoirs will have a chemical-resistant coating. Like the existing modular buildings, each additional building will rest on structural supports that will elevate it and allow visual checks of the underside of the reservoir if there is evidence of deterioration on the interior surfaces. The reservoirs will contain 500 gallons of liquid; therefore the maximum capacity of each additional building (based on the secondary containment) will be 5,000 gallons.

1.1.7 Outdoor Waste Storage Area

The outdoor waste storage area consists of the asphalt paved areas to the north, east, and west of Building 6920 and within the RMWMF fence (Figure 3). The outdoor waste storage area may be used for containerized storage of RCRA-regulated wastes. It has an area of approximately 48,500 ft^2 with a total storage capacity of approximately 19,800 gallons. The area is curbed and paved with berms on the east end of the site, and slopes toward the water retention pond. In the event of any releases of liquids in the outdoor storage area, the curbing and berms and the retention pond would capture released liquids, including precipitation so that any contaminants would not exit the site.

Containers of RCRA-regulated wastes are typically stored inside enclosed steel transportainers, which are 10- to 40-cubic-yard transportable containers. A transportainer typically has doors at one end and can be lifted onto a large flatbed truck for transportation.

The additional modular buildings associated with the CWMF will be located within the outdoor storage area, reducing its total storage capacity to 15,840 gallons.

1.2 Unit Operations

The RMWMF and CWMF WMAs are and will be used to store any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency Hazardous Waste Numbers listed in the General Part A. Many of the wastes may also be treated in the RMWMF WMAs; specific treatment operations are discussed in Sections 1.4 and 8.0 of this Module.

Information regarding operations requiring a permit at all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.900/40 CFR 270.14 [b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Liquid wastes released from individual containers will accumulate in the spill pallets. Unit personnel begin taking action to evaluate and remove accumulated liquids in the spill pallets

and sumps (in Building 6920) upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

In renovated Building 6920 at the CWMF, Unit personnel will inspect containers for integrity when they arrive, before placing them on the shelves in the individual bays. Containers in poor condition will be overpacked into other containers or the RCRA-regulated wastes will be transferred to other containers, as described in Section 1.2.2.1 of the General Part B. The shelves will typically be lined with absorbent pads under removable grating. Containers will be placed on the grating on the shelves, and will be inspected regularly as noted in Section 4.0 of this module and in Appendix C of the General Part B. Released materials will be contained in the absorbent pads and will be cleaned up as described in Section 1.1.1 of the General Part B. These practices will serve to protect the containers on the shelves from contact with liquids.

In renovated Buildings 6920 and 6926 at the CWMF, Unit personnel will begin taking action to evaluate and remove accumulated liquids in each secondary containment area upon discovery. Accumulated liquids will be cleaned up as described in Section 1.1.1 of the General Part B.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.900/40 CFR 270.14[b][9] and 270.15[d]; and 20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177)

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the RMWMF. Sources of ignition that may be present at the RMWMF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the General Part B. Additional RMWMF-specific features, potential ignition and reaction sources, precautions, and practices include:

- The modular storage buildings are grounded by a 10-ft-long grounding rod and cable. They are equipped with a dry chemical fire suppression system to assure that water-reactive wastes will not be exposed to water during fire emergencies.

- Ignitable and reactive wastes are segregated from other wastes and typically stored in the modular storage buildings. The modular storage buildings have exterior signs indicating the presence of ignitable/flammable and reactive wastes.

- Ignitable and reactive wastes may also be stored in Building 6925, and may be kept temporarily in Buildings 6920, 6921, and 6926 for treatment, packaging, and staging for shipment. Individual containers are labeled as described in Section 1.2.1 of the General Part B, and they are kept apart from other wastes.

- Water-reactive wastes are not routinely stored in areas equipped with water sprinklers for fire suppression. They may be managed temporarily in Buildings 6920, 6921, 6925, and 6926 for treatment, packaging, and staging for shipment. If water-reactive wastes are present, they will be isolated from water contact as described in Section 1.1.2.1 of the General Part B, and their location will be identified through the use of signs, labels, or some other method.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas; each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Forklifts are not used for waste movement near treatment operations involving ignitable or reactive wastes in Building 6920 to minimize potential sources of ignition while containers are or may be open.

- Wastes are mixed together on a very limited basis during the treatment and repackaging operations at the Unit. Ignitable and reactive wastes are treated or mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994] or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions. Treatment operations are described in Section 8.0 of this module.

Any of the ignitable or reactive wastes listed in the General Part A may be managed in the future at the CWMF. Sources of ignition that may be present at the CWMF are the same as those in the existing RMWMF, and Unit personnel will employ the same precautions and practices described for the RMWMF. Future features, potential ignition sources, precautions, and practices associated with the CWMF include:

- The enclosed room in the south bay of Building 6920 will be used for open container operations (e.g., bulking, sampling) that may involve ignitable or reactive wastes. The ventilation system will be designed to exhaust air from the lower part of the room to minimize accumulation of potentially hazardous vapors. All electrical receptacles and switches elevated less than four feet from the floor will be intrinsically safe (spark proof). The remainder of the south bay will not be used for operations involving open transfer of potentially ignitable or reactive wastes, and will not require specialized exhaust or an intrinsically safe electrical system.

- Spontaneously ignitable and water-reactive wastes will be segregated from other wastes and typically stored in the new modular storage buildings. The new modular storage buildings will have exterior signs indicating the presence of ignitable and reactive wastes.

- Ignitable and reactive wastes will be stored in any of the buildings, and will be segregated from other wastes within each storage area. The containers will be labeled as described in Section 1.2.1 of the General Part B. In 6920 (north bay), in 6921, and in 6925, Unit personnel will typically place a portable sign near the wastes, use prominent labels, or use another method to assist in identifying them as ignitable and/or reactive. In Building 6920 (south bay), ignitable and reactive wastes will be labeled and segregated in different holding cells according to compatibility criteria in 20 NMAC

4.1.500/40 CFR 264 Appendix V. Each cell will be marked with a sign noting the hazard class(es) of wastes inside. Containers in Building 6926 (including ignitables and reactives) will be labeled. They will be segregated into different bays according to general DOT hazard classes in 49 CFR 172 and 20 NMAC4.1.500/40 CFR 264 Appendix V as appropriate. Each bay will be marked with a sign noting the hazard class(es) of wastes inside. The holding cells and bays will be separated from each other by concrete walls and will have independent containment systems.

- Spontaneously ignitable wastes may be managed temporarily in Buildings 6920, 6921, 6925, and 6926 for treatment, packaging, and staging for shipment. Individual containers will be labeled as described in Section 1.2.1 of the General Part B, and they will be kept apart from other wastes.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.5.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the existing RMWMF/future CWMF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

General information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrants at the RMWMF are shown in Figure 14. These fire hydrants will remain at the CWMF.

The existing modular storage buildings are grounded by a 10-ft-long grounding rod and cable. The additional modular storage buildings will be equipped with the same type of system.

All buildings at the RMWMF are equipped with automatic fire suppression systems, summarized in Table 2.

Table 2
Fire Suppression Systems at the
Radioactive and Mixed Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6920 (general area)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (small rooms)	13	Extra/Group 1	Automatic sprinkler, wet pipe	GB/FS
HEPA filters	15	N/A	Deluge, dry/open	Detection
6921	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6925	13	Ordinary/Group 2	Automatic sprinkler, dry pipe	GB/FS
6926	13	Ordinary/Group 2	Automatic sprinkler, dry pipe	GB/FS
TP150	17	N/A	Dry chemical	
TP153	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb (GB) or fusible solder (FS) type, typically designed to open at temperatures of 155ºF or higher.

All buildings at the CWMF will be equipped with automatic fire suppression systems, summarized in Table 3.

Information on other required equipment located at the RMWMF and CWMF is provided in Section 6.0 and Table 3 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the RMWMF is provided in Appendix C of the General Part B and in Section 4.0 of this module. Information on future equipment testing and maintenance at the CWMF is also provided in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the RMWMF is provided in Section 1.1.3.2 of the General Part B and in Section 6.0 of this module. Information regarding the future CWMF is also provided in Section 6.0 of this module.

Table 3
Fire Suppression Systems at the
Consolidated Waste Management Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6920 (north bay and new east rooms)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (south bay and enclosed room	13, 30	Extra Hazard/ Group 2	Automatic sprinkler, wet pipe	GB/FS
6920 (remainder of south bay)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
HEPA filters	15	N/A	N/A, detection only	N/A
6921	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6925	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
6926 (Bays 1 and 2)	13, 30	Extra Hazard/ Group 2	Automatic sprinkler, wet pipe	GB/FS
6926 (remainder)	13	Ordinary/Group 2	Automatic sprinkler, wet pipe	GB/FS
TP150	17	N/A	Dry chemical	
TP153	17	N/A	Dry chemical	
Additional mod 1	17	N/A	Dry chemical	
Additional mod 2	17	N/A	Dry chemical	

[a] National Fire Protection Association (NFPA), 2000, 2002
[b] Sprinklers are either glass bulb (GB) or fusible solder (FS) type, typically designed to open at temperatures of 155ºF or higher.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the existing RMWMF to prevent hazards. Information regarding the future CWMF is also included. Additional information applicable to the RMWMF, CWMF, and all other Units at SNL/NM is included in Section 1.1.4 of the General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

RMWMF personnel employ the practices described in Section 1.1.4.1 of the General Part B to prevent hazards in unloading. Loading and unloading activities take place on the paved areas, typically immediately outside the buildings. The surface is sloped gently toward shallow drainage ditches, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Drums and other containers of RCRA-regulated waste are typically strapped together on a pallet before being loaded onto vehicles, or are loaded individually. Containers are typically transported within the Unit with forklifts, drum dollies, or pallet jacks.

Unit personnel typically use the loading dock for loading and unloading wastes from trucks. The ramp on the west side of Building 6926 slopes gently up to the dock, allowing forklift operators to drive onto trailers of trucks parked at the dock. The dock and ramp are in good condition and are covered with a corrugated metal roof to provide protection from weather.

Personnel will continue to use these practices during operations at the CWMF.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The area around the Unit slopes gently toward the west. Sheet-flow run-on of surface water from surrounding areas outside the Unit is prevented from entering the WMAs by several features. The elevated gravel road located outside the east fence of the Unit serves to divert water flowing from areas farther to the east. An 8-in. curb at the east edge of the asphalt pavement and an asphalt-lined drainage swale along the eastern edge of the Unit (inside the fence) divert run-on from the gravel road toward the south away from the Unit. On the south and west sides, the Unit is higher than the surrounding land. On the north side, the Unit and a narrow ledge of land outside the fence are higher than the surrounding land. Thus, run-on from all directions is prevented from entering the Unit.

The asphalt-paved areas within the Unit are surrounded by an 8-inch curb, further preventing run-on and run-off. The outside storage area slopes toward the south and west. The concrete pads outside the doors and the asphalt pavement surrounding Buildings 6920, 6921, 6925, and 6926 all slope away from the doors and toward shallow drainage channels that run between buildings 6920, 6925, and 6926. The channels lead to the synthetic-lined water retention pond at the southwest corner of the Unit, providing controlled drainage of storm water from roof downspouts and the paved areas in the RMWMF into the water retention pond. During normal operations, the water retention pond collects only storm water. The water retention pond does not provide secondary containment for RCRA-regulated waste.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated wastes at the RMWMF or CWMF will affect water supplies, as described in Section 1.1.4.3 of the General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. RCRA-regulated waste handling activities in the RMWMF WMAs that are affected by equipment failures or power outages will be suspended in response to such outages.

The RMWMF is equipped with an auxiliary diesel generator that can provide backup power to Building 6920. The generator maintains containment ventilation, alarm systems, heating equipment, and controls necessary to keep water in pipes from freezing should the main power supply fail. This generator will continue to be available following the CWMF modifications.

Equipment and/or power failures at Buildings 6920, 6921, 6925, 6926; the outdoor waste storage area; or the two modular storage buildings will not result in a loss of containment of RCRA-regulated wastes. Equipment and/or power failures at the two additional CWMF modular storage buildings will not result in a loss of containment of RCRA-regulated wastes.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

RMWMF personnel employ the practices described in Section 1.1.4.5 of the General Part B to prevent undue exposure. In addition, the enclosed work areas and negative-pressure ventilation systems in the fume hoods in Buildings 6920 and 6921 provide additional protection for Unit personnel performing treatment and repackaging operations. Anticipated emissions from treatment operations are discussed in Section 8.2.

Following renovation, both the north and south bays of Building 6920 at the CWMF will be equipped with fume hoods and localized ventilation systems that will provide additional protection for Unit personnel performing treatment and repackaging operations.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

RMWMF personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere during storage. CWMF personnel will employ the same practices.

Subpart AA

RMWMF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA. CWMF storage operations will not employ any of these processes.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03]. Equipment used in such service at the RMWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [10-1-03]. The equipment list will be maintained in the RMWMF records. Equipment use will also be noted in the records.

Repackaging operations at the CWMF will sometimes involve a pump to be used in light organic service. It will be used for less than 300 hours per calendar year and will therefore be exempt from the requirements in the same manner as the equipment at the existing RMWMF. The equipment list will be maintained in the CWMF records, and equipment use will also be noted in the records.

Subpart CC

Unit personnel (at the RMWMF and future CWMF) follow and will continue to follow the practices described in Section 1.1.4.6 of the General Part B and maintain compliance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the existing or future Unit.

Section B.5.3 in Appendix B of the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [10-1-03].

1.3 Container Storage (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264, Subpart I)

Container storage practices applicable to the RMWMF and future CWMF are presented in the following sections.

1.3.1 Container Types and Labeling

RMWMF personnel use the containers types and labeling practices described in Section 1.2.1 of the General Part B. They will continue to apply to CWMF operations.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

RMWMF personnel employ the container handling practices described in Section 1.2.2 of the General Part B. CWMF personnel will use the same practices.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the RMWMF is maintained as indicated in Section 1.2.2.1 of the General Part B. Containers at the CWMF will be maintained in the same manner.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

RMWMF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the General Part B. Aisle width is typically 2.5 feet; this is adequate for

unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency. CWMF personnel will employ the same practices.

In Buildings 6920, 6921, 6925, and 6926, drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than three pallets high. Box-shaped containers may be stacked three high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

Following renovation, container storage practices in Building 6926 and the south bay of Building 6920 will be modified. Stacked drum-shaped containers will be stored on pallets, and containers of liquids will not be stacked more than two pallets high. Containers of solids may be stacked three pallets high. Containers may also be stored directly on the grating or on pallets on the floor. Smaller containers may be stacked on a single pallet or on the grating.

Containers of liquids are not stacked when stored in the existing modular buildings at the RMWMF. Fifty-five gallon drums stored in all of the modular buildings at the CWMF will not be stacked; smaller containers may be stacked, including containers of liquids.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

RMWMF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the General Part B. CWMF personnel will follow the same practices.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

RMWMF personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the General Part B before storing containers in areas that are not equipped with secondary containment. CWMF personnel will follow the same practices.

1.4 Treatment Operations

RCRA-regulated wastes are treated at the RMWMF by the following methods:

- Chemical deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Thermal deactivation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Stabilization (performed in the south bay of Building 6920 or in the treatment area in Building 6921).

- Amalgamation (performed in the south bay of Building 6920 or in the treatment area in Building 6921).
- Macroencapsulation (performed in Buildings 6920, 6921, or 6925)
- Physical treatment (performed in either bay in Building 6920 and in Building 6921).

Personnel at the CWMF will continue to treat RCRA-regulated wastes using the same treatment methods and equipment in the following locations:

- Chemical deactivation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Thermal deactivation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Stabilization will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Amalgamation will be performed in the north bay of Building 6920 or in the treatment area in Building 6921.
- Macroencapsulation will be performed in Buildings 6920, 6921, or 6925.
- Physical treatment will be performed in the north bay in Building 6920 and in Building 6921.

The treatment practices applicable to the RMWMF and CWMF are discussed in detail in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [10-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of General Part B.

2.1 Security Procedures And Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the RMWMF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The existing RMWMF is completely surrounded by an 8-ft-high chain-link and barbed-wire fence. A single personnel entrance door adjacent to the main vehicle entrance gate is located on the south side of the RMWMF. Another personnel entrance door and vehicle gate are located on the north side of the RMWMF. The gates and doors in the RMWMF fence are maintained in closed and locked positions. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the RMWMF gates during non-operational hours.

During work hours, RMWMF employees may enter the area through the locked personnel doors by entering the appropriate code into a keypad on the RMWMF fence near each personnel door. Emergency and service vehicles may enter the RMWMF through the electronically-controlled main vehicle gate if RMWMF personnel enter the appropriate code into a keypad

inside the office trailer or on the keypads located near the personnel doors on the RMWMF fence. Signs instruct personnel and visitors to report to the office trailer for site entry privileges and instructions. Resident personnel have Sandia-issued badges. Individuals who do not have a Sandia-issued badge are escorted. These procedures limit access to the RMWMF WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

The RMWMF is located inside TA-III (Figures 1 and 2). TA-III is surrounded by a barbed wire fence with designated access gates. TA-III access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-III.

The CWMF will be located at the site of the existing RMWMF and will include the same features and operating practices.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The permanent perimeter fence surrounding the RMWMF and the entrance to the RMWMF are posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from any approach to the RMWMF. The fence and signs will remain around the CWMF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated waste to the RMWMF include Wyoming Boulevard, Hardin Boulevard (formerly “O” Street), and Pennsylvania Avenue. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved road to TA-III turns southwestward off of Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Boulevard entrance gate as shown on Figure A-4 in Appendix A of the General Part B.

Within TA-III, traffic access to and from the RMWMF is along 2-lane asphalt-paved roads shown on Figure A-6 in Appendix A of the General Part B. Vehicles entering the RMWMF travel on an asphalt-paved 2-lane drive from the road through the south vehicle gate, as shown on Figure 9. Within the RMWMF, waste is transported on asphalt-paved surfaces.

All these traffic routes will apply to future CWMF operations.

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard and Hardin Boulevard are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Traffic volumes within TA-III are light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Approximately 10 to 30 vehicles per week travel into and out of the RMWMF. These include flatbed trucks and trailers carrying supplies, RCRA-regulated wastes from initial generators, and wastes to off-site TSDFs.

Approximately 20 to 40 vehicles per week are expected to travel into and out of the CWMF. These will include the same types of vehicles described above.

2.2.3 Traffic Control Signals

Vehicles must stop at a gate prior to entering or leaving TA-III. Only authorized personnel are permitted into TA-III. Speed limit signs (i.e., “30 mph Unless Otherwise Posted”) are located at several locations in TA-III.

There are no traffic control signals or signs within the RMWMF fenced area. A speed limit sign (i.e., “Max. Speed 5 mph On Site”) is posted on the fence adjacent to the RMWMF entrance gate (Figure 9). Vehicle presence within the RMWMF fenced area is limited to official and waste transport vehicles. Therefore, signals or signs are not necessary to control traffic within the RMWMF fenced area.

Traffic control at the CWMF will be the same as that currently practiced at the RMWMF.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i] and [ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the existing RMWMF/ future CWMF are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the existing RMWMF/future CWMF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [10-1-03]).

- Surface waters, including intermittent streams, near the existing RMWMF/future CWMF are shown on Figure A-2 in Appendix A of the General Part B and Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the General Part B and Figure 10 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [10-1-03]). The area surrounding the existing RMWMF/future CWMF is occupied by test areas and Sandia-controlled operations (industrial land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the General Part B and Figure 10 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [10-1-03]).

- Legal boundaries of SNL/NM (including the existing RMWMF/future CWMF) are shown on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [10-1-03]).

- Access control features at the existing RMWMF and future CWMF (e.g., fences, gates) are shown on Figures 10 and 11 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the existing RMWMF and future CWMF are shown on Figure A-2 in Appendix A of the General Part B and Figure 10 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [10-1-03]).

- The location of the WMA structures, loading and unloading areas, roads, and sanitary sewers associated with the existing RMWMF and future CWMF are shown on Figures 10 and 11 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 12 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [10-1-03]).

- Locations of the existing RMWMF and RMWMF WMAs and the future CWMF and CWMF WMAs are shown on Figures 3 and 10 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][xii] [10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the existing RMWMF/future CWMF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03], SNL/NM has submitted the maps to the NMED at these scales and contour intervals due to the size of the existing RMWMF/future CMWF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of this comprehensive Part B permit request. The existing RMWMF is not a regulated unit, and the future CWMF will not be a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor are the RMWMF or CWMF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

Waste analysis requirements applicable to all Units, including the existing RMWMF and future CWMF, are addressed in Appendix B of the General Part B as required by 20 NMAC 4.1.900/40 CFR 270.14[b][2], 20 NMAC 4.1.500/40 CFR 264.13, “General Waste Analysis.”

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03] require that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated waste to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the “Site-Wide Inspection Plan”, provided as Appendix C of the General Part B. RMWMF personnel conduct inspections in accordance with the site-wide plan. CWMF personnel will do the same.

Specific items and areas that are inspected are listed in Table 4, with the inspection criteria and frequency. The items listed in the table are inspected in each RMWMF WMA where applicable.

Specific items and areas that will be inspected in the future CWMF are listed in Table 5, with the inspection criteria and frequency. The items listed in the table will be inspected in each CWMF WMA where applicable.

Automatic fire suppression systems are included in Tables 4 and 5. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on the requirements of NFPA 25 “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” (NFPA,2002), as described in Section 1.1.3.2 of the General Part B.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained at the RMWMF. Inspection records for previous calendar years are maintained at the RMWMF or the SNL/NM Records Center. CWMF personnel will follow the same practices.

Table 4
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 6 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash/safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building/storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Overhead crane	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Secondary containment (Buildings 6920, TP150, TP153)	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.

Table 4 (Concluded)
Radioactive and Mixed Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Treatment areas	Good condition, clean, uncluttered, no spills	Daily when and where wastes are handled. Monthly otherwise.
Fume hoods	Good condition, clean, no deterioration	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or deterioration)	Prior to treatment (consumable items) or daily when and where wastes are treated (tools). Monthly otherwise.
Thermal deactivation equipment	Good condition (i.e., no releases or deterioration)	Daily when used to treat wastes. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 or 3 maximum)	Check individual containers as they are handled. Weekly otherwise.

Table 5
Consolidated Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 6 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash/safety shower	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, accessible, quantities per inventory, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building/storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Shelves (south bay of Building 6920)	Clean, in good condition, no accumulated leaks or spills	Daily when and where wastes are handled. Weekly otherwise.
Jib crane (Building 6920)	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Secondary containment (Buildings 6920, 6926, TP150, TP153, and additional modular buildings)	Free of liquids, good condition (i.e., no cracks, excessive wear)	Daily when and where wastes are handled. Weekly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Waste transfer pump	Present, operational, and in good condition	Prior to use. Monthly otherwise.

Table 5 (Concluded)
Consolidated Waste Management Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Treatment areas (Buildings 6920, 6921, and 6925)	Good condition, clean, uncluttered, no spills	Daily when and where wastes are handled. Monthly otherwise.
Fume hoods (Buildings 6920 and 6921)	Good condition (i.e., no releases or deterioration)	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no releases or deterioration)	Prior to treatment (consumable items) or daily when and where wastes are treated (tools). Monthly otherwise.
Thermal deactivation equipment	Good condition (i.e., no releases or deterioration)	Daily when used to treat wastes. Monthly otherwise.
Monitoring equipment	Instruments in good condition, operational, calibrated	Daily when and where wastes are handled. Monthly otherwise.
Stormwater retention pond	Sampled for presence of released/spilled hazardous waste constituents if there is evidence of or chance that such constituents entered the pond	Within five days of a release requiring reporting to the NMED Secretary.
SECURITY DEVICES		
Fence	Present and in good condition	Monthly
Warning signs	Present and in good condition	Monthly
Gates and doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 or 3 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training Requirements for Unit personnel are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][12] and 20 NMAC 4.1.500/40 CFR 264.16 [10-1-03], "Personnel Training."

The Sandia/DOE training program is designed and implemented to prepare personnel to safely operate and maintain those areas used for managing RCRA-regulated wastes. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the RMWMF.

RMWMF personnel receive training in accordance with the "Site-Wide Personnel Training Plan," provided as Appendix D of the General Part B. All job descriptions identified in Appendix D, Table D-2 of the General Part B are applicable at the RMWMF.
Training records for RMWMF personnel are maintained at the RMWMF.

The training applicable to existing RMWMF operations will also be applicable to future CWMF operations. Personnel will receive training and maintain records in the same manner as current RMWMF personnel. All job descriptions identified in Appendix D, Table D-2 of the General Part B will be applicable at the CWMF.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permitted units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [10-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03]. The "Site-Wide Contingency Plan" is included in as Appendix E of the General Part B. Supplemental RMWMF-specific information is included in this section, in Figures 11 and 12, and in Tables 3 and 4 of this module. Current copies of the site-wide contingency plan (Appendix E of the General Part B) and this supplemental information are maintained at the existing RMWMF and at the SNL/NM Emergency Operations Center. The information will be maintained at the CWMF.

The existing RMWMF is located in the southeastern corner of TA-III at SNL/NM. It is used for treatment and storage of RCRA–regulated wastes. The WMAs at the RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and the outdoor waste storage area (i.e., paved areas within the RMWMF fence and north, east, and west of Building 6920). All are surrounded by a fence. Sandia/DOE plan to make physical modifications to the RMWMF during the next three years to increase capacity; the modified facility will be called the CWMF. The future CWMF will be located in the same fenced area, and will include the same WMAs plus two additional modular storage buildings. Sandia/DOE will conduct the same operations at the CWMF (storage, repackaging, and treatment of RCRA-regulated wastes) that are currently conducted at the RMWMF.

The existing RMWMF WMAs include the following:

- Building 6920 at the existing RMWMF is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 square feet of space used for waste storage and treatment activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage. The building also includes a control room, restrooms, and electrical and mechanical rooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored over a sump in the south bay or on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, thermal deactivation, or physical treatment. Up to 13,420 gallons of waste may be stored in this building.

- Building 6921 at the existing RMWMF is a single-story CMU building with approximately 1450 square feet of space used for waste storage and treatment activities. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are not stored together. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, or physical treatment. Up to 7,810 gallons of waste may be stored in this building.

- Buildings 6925 and 6926 at the existing RMWMF are each 4000-square-foot prefabricated steel buildings on concrete foundations. Containers of wastes (typically

less than 55 gallons) are stored in this building. Containers with liquids are stored on portable spill containment pallets. Containers of incompatible wastes are segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may also be treated by macroencapsulation. Up to 83,160 gallons of waste may be stored in each building.

- Two modular, prefabricated safety storage structures located west of Building 6920 at the existing RMWMF are used for the storage of reactive and ignitable wastes. Each structure is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. Each structure may contain up to 1,100 gallons of waste.

  The outdoor waste storage area at the existing RMWMF consists of 48,500 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence that may be used for storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers. Containers with liquids are stored on portable spill containment pallets inside the transportainers. Up to 19,800 gallons of wastes may be stored in these areas.

The future CWMF WMAs will include the following:

- Renovated Building 6920 will be a single-story concrete masonry unit (CMU) and steel building with a control room, restrooms, electrical and mechanical rooms, and approximately 6,100 square feet of space used for waste storage and treatment activities. Up to 57,070 gallons of RCRA-regulated wastes will be stored in waste management areas of the building. The interior will be separated into staging and storage areas, and two separate bays (north and south). All WMA floors will be coated with an epoxy finish.

  - Operations in the south bay will include storage and repackaging RCRA-regulated wastes. The south bay of the renovated building will include holding bays (with recessed floors) for storage of small containers (typically less than 55 gallons) of RCRA-regulated waste, an enclosed room, a main area, and airlocks at the east and west ends that can be used for storage. Containers of chemically incompatible wastes will be segregated into separate bays.

  - The north bay will be used for repackaging, storage, and treatment of RCRA-regulated wastes. Containers of liquids will be stored on portable spill containment pallets. The north bay will include work areas and storage areas in the new addition on the east end of the building. Containers of incompatible wastes will not be stored together. RCRA-regulated wastes may be treated by chemical deactivation, thermal deactivation, macroencapsulation, amalgamation, stabilization, or physical treatment.

- Building 6921 at the CWMF will be a single-story CMU building with approximately 1450 square feet of space used for waste storage and treatment activities. The building also includes office space and restrooms. Containers of wastes (typically less than 55 gallons) will be stored in this building. Containers with liquids will be stored on portable spill containment pallets. Containers of incompatible wastes will not be stored together. The containers and contents may be repackaged into other containers for

shipment to off-site facilities. RCRA-regulated wastes may be treated by chemical deactivation, macroencapsulation, stabilization, or physical treatment. Up to 7,810 gallons of waste may be stored in this building.

- Building 6925 at the CWMF will be a 4000-square-foot prefabricated steel building on a concrete foundation. Containers of wastes (typically less than 55 gallons) will be stored in this building. Containers with liquids will be stored on portable spill containment pallets. Containers of incompatible wastes will be segregated into different areas. The containers and contents may be repackaged into other containers for shipment to off-site facilities. RCRA-regulated wastes may also be treated by macroencapsulation. Up to 83,160 gallons of waste may be stored in this building.

- Building 6926 at the CWMF will be a 4000-square-foot prefabricated steel building on a concrete foundation. The building will include seven separate recessed waste storage compartments for segregation of wastes according to chemical compatibility. Up to 73,419 gallons of waste may be stored in the building.

- Two modular, prefabricated safety storage structures located west of Building 6920 at the CWMF will be used for the storage of reactive and ignitable wastes. Each structure is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. Each structure may contain up to 1,100 gallons of waste.

- Two additional modular, prefabricated safety storage structures will be located in the northeast corner of the fenced CWMF facility, and will also be used for the storage of reactive and ignitable wastes. Each structure will be constructed of 10- to 12-gauge welded steel, and will include a welded steel containment pan covered by grating. Each structure may contain up to 5,000 gallons of waste.

- The outdoor waste storage area at the CWMF will consist of 48,500 square feet of asphalt-paved areas to the north, east, and west of Building 6920 within the CWMF fence that may be used for storage of containers of RCRA-regulated wastes. Containers of RCRA-regulated wastes will typically be stored inside enclosed transportainers. Containers with liquids will be stored on portable spill containment pallets inside the transportainers. Up to 15,840 gallons of wastes may be stored in these areas.

RCRA-regulated wastes bearing the U.S. EPA Hazardous Waste Numbers listed in the General Part A may be stored and/or treated at the existing RMWMF and future CWMF WMAs.

Figure 13 presents evacuation routes for the existing RMWMF. Figure 14 presents evacuation routes for the future CWMF. Figure 15 presents emergency response and access information for the existing RMWMF. Figure 16 presents emergency response and access information for the future CWMF. Table 6 lists the emergency equipment typically available at the existing RMWMF. Table 7 lists the emergency equipment that will typically be available at the CWMF. Table 8 lists the emergency coordinators for the RMWMF; these personnel will also serve as emergency coordinators for the CWMF.

Table 6
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Stations/ Showers	• On north wall in south bay • Near office in north bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In hallway between north and south bays
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In hallway between north and south bays
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
	Audible fire alarms	Located throughout the building

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6920 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Control room, south and north bays
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • By personnel door in southwest corner of south bay • In hallway between north and south bays • By personnel door in west mechanical room
	Portable (D)	In northwest corner of north bay
	Portable (A-B-C)(D)	By personnel door on north wall of north bay
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	On north wall of assay area
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By north wall of assay area
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By north wall of assay area
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
	Audible fire alarms	Located throughout the building

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6921 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Office and lab areas
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
Fire Extinguishers	Portable (A-B-C)	• By north personnel door in electrical/mechanical room • In hallway between assay area and north office area • By northwest personnel door of assay area • By east personnel door in southeast counting room
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6925

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By personnel door near center of south wall
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By personnel door near center of south wall
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By personnel door near center of south wall
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
	Audible fire alarms	Located on east and west wall
External Communication System	Telephone	By personnel door in southwest corner of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building
	Portable (A-B-C)(D)	By personnel door near center of south wall
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 6 (Continued)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Building 6926

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	In southeast area of building
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In southeast area of building
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In southeast area of building
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
	Audible fire alarms	Located on east wall and west wall
External Communication System	Telephone	In southeast area of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door on west wall of building • By personnel door on south wall of building
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door on west wall of building
	Portable (A-B-C)(D)	By personnel door on south wall of building
Fire Suppression	Automatic dry-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 6 (Concluded)
Radioactive and Mixed Waste Management Facility, Emergency Equipment and Locations

Modular Storage Buildings

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Buildings 6920 and 6926
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the RMWMF
	Recovery drums and containers	In equipment storage at the RMWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	Buildings 6920 and 6926
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
	Audible fire alarms	Buildings 6920, 6921, 6925, and 6926
External Communication System	Telephones	Buildings 6920 and 6926
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
Fire Suppression	Automatic dry chemical system	Coverage throughout the building

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 7
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6920

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Stations/ Showers	• Near enclosed bulking room in south bay • Near office in north bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In hallway between north and south bays
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In hallway between north and south bays
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
	Audible fire alarms	Located throughout the building

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6920 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Control room, south and north bays
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • In southwest corner of southwest airlock • By personnel door in west mechanical room • By personnel door on north wall of north bay • By personnel door in entryway west of office
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southeast corner of south bay • By personnel door in southwest corner of south bay • In hallway between north and south bays • By personnel door in west mechanical room
	Portable (D)	In northwest corner of north bay
	Portable (A-B-C)(D)	By personnel door on north wall of north bay
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6921

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	On north wall of assay area
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By north wall of assay area
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By north wall of assay area
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
	Audible fire alarms	Located throughout the building

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6921 (continued)

Category	Description/Capabilities	Location
External Communication System	Telephones	Office and lab areas
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in electrical/mechanical room • In central hallway outside restrooms • In northwest corner of assay area • By east personnel door in southeast counting room • By east personnel door in middle east office area
Fire Extinguishers	Portable (A-B-C)	• By north personnel door in electrical/mechanical room • In hallway between assay area and north office area • By northwest personnel door of assay area • By east personnel door in southeast counting room
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6925

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By personnel door near center of south wall
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By personnel door near center of south wall
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	By personnel door near center of south wall
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
	Audible fire alarms	Located on east and west wall
External Communication System	Telephone	By personnel door in southwest corner of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building • By personnel door near center of south wall
Fire Extinguishers	Portable (A-B-C)	• By personnel door in northeast corner of building • By personnel door in southwest corner of building
	Portable (A-B-C)(D)	By personnel door near center of south wall
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Continued)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Building 6926

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Eyewash Station/Shower	In southeast area of building
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	In southeast area of building
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	In southeast area of building
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in southeast corner of building • By personnel door on west wall of building
	Audible fire alarms	Located on east wall and west wall
External Communication System	Telephone	In southeast area of building
	Fire alarm pull station (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	• By personnel door in southeast corner of building • By personnel door on west wall of building
Fire Extinguishers	Portable (A-B-C)	• By personnel door in southeast corner of building • By personnel door on west wall of building
	Portable (A-B-C)(D)	By personnel door on southeast corner of building
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Sprinklers located throughout building
	Water supplied by fire hydrants	Three hydrants, locations shown in Figure 14

Table 7 (Concluded)
Consolidated Waste Management Facility, Emergency Equipment and Locations

Four Modular Storage Buildings (two buildings west of 6920, two buildings in northeast corner of CWMF)

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Buildings 6920 and 6926
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the CWMF
	Recovery drums and containers	In equipment storage at the CWMF
	Miscellaneous PPE (protective suits, goggles and/or safety glasses, chemical-resistant gloves)	Buildings 6920 and 6926
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
	Audible fire alarms	Buildings 6920, 6921, 6925, and 6926
External Communication System	Telephones	Buildings 6920 and 6926
	Fire alarm pull boxes (pulling handle sends signal to KAFB fire department, does not actuate system)	Buildings 6920, 6921, 6925, and 6926
Fire Suppression	Automatic dry chemical system	Coverage throughout each building

PPE personal protective equipment
KAFB Kirtland Air Force Base

Table 8
Radioactive and Mixed Waste Management Facility,
Consolidated Waste Management Facility,
Emergency Coordinator List

November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Jeff Jarry Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-3080 (office) (505) 561-1138 (pager)	(505) 452-3337
First Alternate	Mike Spoerner Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2813 (office) (505) 540-5296 (pager)	(505) 828-3441
Second Alternate	Phil Zelle Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2486 (office) (505) 540-7437 (pager)	(505) 292-5097
Third Alternate	Mary Ann Krauss Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 845-9997 (office) (505) 540-5228 (pager)	(505) 299-0793
Fourth Alternate	Leroy Duran Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-1488 (office) (505) 530-4105 (pager)	(505) 281-4183

One or more of these personnel are routinely available during operating hours (7:00 am to 5:30 pm, Monday through Thursday).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14[b][13] and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I [10-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the General Part B. The site-wide plan includes a description of the SNL/NM facility, waste descriptions, closure performance standards, general closure methods, a sampling and analysis plan (SAP), a general closure schedule, procedures for amendment of the plan, closure certification and letter, survey plat, and post-closure requirements. Unit-specific information for closure of the existing RMWMF or closure of the future CWMF is included in this section.

7.1 Unit Description

Sandia/DOE use the existing RMWMF and will use the future CWMF for treatment, repackaging, and storage of RCRA-regulated waste. The existing RMWMF is located in the southeastern corner of TA-III at SNL/NM. The waste management areas (WMAs) at the existing RMWMF include Buildings 6920, 6921, 6925, and 6926; two modular storage buildings; and an outdoor waste storage area (i.e., paved areas within the existing RMWMF fence and north, east, and west of Building 6920). The CWMF will be located in the same area, and will include the same WMAs and two additional modular storage buildings.

- Building 6920 (Figure 17) at the existing RMWMF is a single-story concrete masonry unit (CMU) and steel building with approximately 5,000 ft^2 of space used for treatment and container storage activities. Inside the building are two bays (north and south), separated by an interior airlock. The south bay includes four small rooms used for treatment and storage; one of these rooms is equipped with a fume hood with a local negative-pressure ventilation system. Another room is equipped with a portable local ventilation system. Two areas of the north bay are also equipped with local negative-pressure ventilation systems. The air flow from the ventilation systems passes through a HEPA filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow. The floors of the north and south bays are coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor. The south bay includes an epoxy coated sump that provides secondary containment for liquids stored in the area.

  Renovated Building 6920 (Figure 18) in the CWMF will be a single-story CMU and steel building with a control room, restrooms, electrical and mechanical rooms, and approximately 6,100 ft^2 of space used for waste storage, repackaging, and treatment activities. The interior will be separated into staging and storage areas at the east end, and two separate bays (north and south). All WMA floors will be coated with an epoxy finish.

  - The south bay of the renovated building will include holding bays and an enclosed room with recessed floors. An additional sump will be located near the south wall of the south bay. The enclosed room will contain two fume hoods with individual negative-pressure ventilation systems. Operations in the south bay will include

storage and repackaging (including bulking of liquids). Airlocks used for storage will be located at the east and west ends of the south bay.

- Two areas of the renovated north bay will be equipped with local negative-pressure ventilation systems, and two fume hoods with individual exhaust systems. The air flow from the ventilation systems will pass through a HEPA filter train before being released to the environment through an exhaust stack. The filters will effectively remove particulates entrained in the air flow. Operations will include storage and treatment. Containers of liquids will be stored on portable spill containment pallets. Two additional storage areas will be located on the east end of the north bay.

- Building 6921 (Figure 19) is a single-story CMU building with approximately 1,450 ft^2 of space used for treatment and container storage activities in three areas. The concrete floors are covered with a chemical-resistant epoxy coating. One room contains a fume hood with a local negative-pressure ventilation system. The exhaust from the system passes through a HEPA filter train before being released to the environment through an exhaust stack.

  RCRA-regulated WMAs and operations in CWMF Building 6921 will be the same as the areas and operations in RMWMF Building 6921.

- Buildings 6925 and 6926 (Figure 20) are each 4,000-ft^2 prefabricated steel buildings on concrete foundations. The buildings are used for container storage of RCRA-regulated wastes, and Building 6925 is also used for treatment. The concrete floors are covered with a chemical-resistant epoxy coating. The buildings are used for storage of wastes in containers.

  The WMA and operations in CWMF Building 6925 (Figure 21) will be the same as the area and operations at RMWMF Building 6925. Building 6926 (Figure 21) will be renovated to include seven holding bays with recessed floors covered with a chemical-resistant epoxy finish.

- Two modular, prefabricated storage structures located west of Building 6920 are used for container storage of RCRA-regulated reactive and ignitable wastes. Each structure (Figure 22) is constructed of 10- and 12-gauge welded steel with supporting structural steel sections, and includes a welded steel containment pan covered by grating. The inside surfaces are covered with a chemical-resistant epoxy coating.

  RCRA-regulated WMAs and operations in the CWMF modular buildings west of Building 6920 will be the same as the areas and operations in the existing RMWMF. Two additional modular prefabricated storage buildings will be located in the northeast corner of the CWMF; these buildings will be similar to the existing buildings, and the operations will also be similar.

- The outdoor waste storage area consists of 48,500 ft^2 of asphalt-paved areas to the north, east, and west of Building 6920 within the RMWMF fence. This area may be used for container storage of RCRA-regulated wastes. Containers of RCRA-regulated wastes are typically stored inside enclosed transportainers at this WMA. Containers with liquids are stored on portable spill containment pallets inside the transportainers.

  The two additional CWMF modular buildings (similar to those shown in Figure 22) will be installed in this area. They will have no effect on the outdoor storage area other than reducing its capacity. The operations in the CWMF outdoor storage area will be the same as the operations in the current RMWMF outdoor storage area.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum total volume of RCRA-regulated waste in treatment and/or storage at any time at the existing RMWMF is estimated at approximately 209,550 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volume is broken down as follows:

- Building 6920: 13,420 gallons
- Building 6921: 7,810 gallons
- Building 6925: 83,160 gallons
- Building 6926: 83,160 gallons
- Modular storage building TP150: 1,100 gallons
- Modular storage building TP153: 1,100 gallons
- Outdoor waste storage area: 19,800 gallons

The maximum total volume of RCRA-regulated waste in treatment and/or storage at any time at the future CWMF is estimated at approximately 322,919 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volume is broken down as follows:

- Building 6920: 57,070 gallons
- Building 6921: 7,810 gallons
- Building 6925: 83,160 gallons
- Building 6926: 73,419 gallons
- Modular storage building TP150: 1,100 gallons
- Modular storage building TP153: 1,100 gallons
- Two additional modular buildings: 5,000 gallons each
- Outdoor waste storage area: 15,840 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan , partial closure activities specified in this plan assume the following conditions were met during the operational life of the RMWMF and CWMF:

- Waste handling and treatment activities that involved opening containers of RCRA-regulated waste were confined to the RMWMF and CWMF WMAs. If contamination occurred, it would have been confined to those areas.

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during treatment activities, they would only be present in the systems up to the first filter.

- The WMAs are physically separate; therefore, each WMA is considered independently of the other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- Containers of wastes were not routinely stored on the asphalt in the outdoor storage area. Containers were occasionally staged there temporarily if needed to accommodate operations involving large numbers of containers (e.g., staging for shipments). Containers of liquids were stored on spill pallets and were not stored directly on the asphalt. Containers of waste were not opened in the area, therefore, RCRA-regulated wastes or hazardous waste constituents are not present on the asphalt unless there is knowledge or evidence of a release.

- Containers of waste were stored in steel transportainers in the outdoor storage area. Containers of liquids were not routinely stored within the transportainers; those that were present were stored on spill pallets. Containers of waste were not opened within the transportainers; therefore, RCRA-regulated wastes or hazardous waste constituents are not present in any transportainer unless there has been a release in that transportainer.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the WMAs where wastes were managed.

- The interior floors of the WMAs in each building were maintained to retain their integrity by following established maintenance and inspection procedures, breaches of protective coatings did not occur, and a small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the RMWMF and/or CWMF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- Items of equipment within the treatment areas will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. Items that are most likely to be removed include local exhaust systems (up to the first filter), filters, and portable equipment. Items that are most likely to be decontaminated include the interiors of fume hoods.

- Transportainers used for storage in the outdoor waste storage area will be visually examined for evidence of releases. Additional closure activity will be limited to those areas where RCRA-regulated wastes or hazardous waste constituents could be present due to visual evidence of releases or knowledge of prior releases. The transportainers will be evaluated individually to determine whether it is more effective to remove them or decontaminate them.

- The modular storage buildings (TP150 and TP153) will be evaluated individually to determine whether it is more effective to remove them or decontaminate them. During closure of the CWMF, the additional modular storage buildings will be evaluated in the same manner.

- The floors of each treatment and/or storage WMA will be decontaminated by sweeping and washing as described in Section F.5, except as noted in this section.

- The asphalt in the outdoor waste storage area will be visually examined for evidence of deterioration and releases. Decontamination or removal of the asphalt will be limited to areas where there is visual evidence or documentation indicating a release of RCRA-regulated wastes or hazardous waste constituents has occurred.

7.4.2 Closure Schedule

Section F.7 of the site-wide closure plan provides a timeline for closure activities applicable to all permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the existing RMWMF or the future CWMF. The planned renovation activities at the future CWMF do not include closure of any of the WMAs at the existing RMWMF. A Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the RMWMF or CWMF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide closure plan presents general sample collection equipment and techniques applicable to all Units at the SNL/NM facility. This Unit-specific SAP describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the existing RMWMF or future CWMF in accordance with the

requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [10-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples; required analytical constituents; closure criteria, QA and quality control [QC] procedures) regarding RCRA closure of the RMWMF and future CWMF.

7.5.1 Sampling and Analysis Scope

This SAP presents procedures for acquisition, analyses, and evaluation of samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor and, where appropriate, secondary containment surfaces and fume hood interiors of six of the WMAs at the existing RMWMF (Buildings 6920, 6921, 6925, and 6926; and the two modular storage buildings); and similar samples from the transportainers at the outdoor waste storage area. All of the samples will be analyzed to determine concentrations of a set of indicator parameters selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator parameters and the applicable criteria for clean closure are identified in Tables 9 and 10, and the rationale for their selection is presented in Section 7.5.3.

The same approach will be used for sampling and analysis of samples from the WMAs at the future CWMF (Buildings 6920, 6921, 6925, and 6926; the four modular storage buildings, and transportainers at the outdoor waste storage area). Indicator parameters and applicable criteria for clean closure are identified in Tables 9 and 11, and the rationale for their selection is presented in Section 7.5.3.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA within a building, except for fume hoods, and of each transportainer at the outdoor storage area will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

Two samples of used wash water and two samples of used decontamination rinse water will be collected from each area indicated in Tables 10 or 11. Used wash water will be contained in the bays, in temporary berms, or other containment devices; sampled; and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA, as discussed above, prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 9.

Table 9
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA, except for fume hoods (representative of material removed from entire floor surface)	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	5.6 ppm 130 ppm <1 ppm 17.3 ppm 21.4 ppm <0.25 ppm <1 ppm <1 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Same as above	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the existing RMWMF and future CWMF due to their typical presence in the wastes stored at each Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 10
Radioactive and Mixed Waste Management Facility, Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c]
Building 6920 (Figure 17)	$S_1 – S_7$	4	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	S_8	4[d]	Same as above	Same as above
	S_9 (Fume Hood)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
	$N_1 – N_7$	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6921 (Figure 19)	WA	4	Same as above	Same as above
	WT_1, WT_2	4	Same as above	Same as above
	Fume Hood	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6925 (Figure 20)	A - B	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6926 (Figure 20)	A - B	4	Same as above	Same as above
Modular Storage Buildings (Figure22)	A	4[d]	Same as above	Same as above
Outdoor Storage Area	Each Transportainer	4	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the existing RMWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: (1) the joint guidance developed by the National Association of Attorneys General (NAAG) and the NAAG/DOE Working Group, *Sharing of Radionuclide Information with States*, dated September 1998, and (2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico for Environmental Oversight and Monitoring, dated November 29, 2000.

[d] Secondary containment surfaces (bottoms and sides) will be washed up to the secondary containment level.

[e] The interior surfaces of fume hoods will be washed.

Table 11
Consolidated Waste Management Facility
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Grid(s)	Samples per Grid[a]	Indicator Parameters[b]	Closure Criteria[c]
Building 6920 (Figure 18)	$S_1 – S_{10}$	4[d]	Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	$S_{11} – S_{13}$	4	Same as above	Same as above
	$S_{14} – S_{15}$ (Fume Hoods)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
	$N_1 – N_9$	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	$N_{10} – N_{11}$ (Fume Hoods)	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6921 (Figure 19)	WA	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
	WT_1, WT_2	4	Same as above	Same as above
	Fume Hood	4[e]	Same as above	Evaluate with respect to concentrations in pre-wash water
Building 6925 (Figure 21)	A - B	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Building 6926 (Figure 21)	A – D, F – H	4[d]	Same as above	Same as above
	E	4	Same as above	Same as above
Modular Storage Buildings (Figure 22)	A	4[d]	Same as above	Same as above
Outdoor Storage Area	Each Transportainer	4	Same as above	Same as above

[a] One sample from each pair of wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the future CWMF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: (1) the joint guidance developed by the National Association of Attorneys General (NAAG) and the NAAG/DOE Working Group, *Sharing of Radionuclide Information with States*, dated September 1998, and (2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico for Environmental Oversight and Monitoring, dated November 29, 2000.

[d] Secondary containment surfaces (bottoms and sides) will be washed up to the secondary containment level.

[e] The interior surfaces of fume hoods will be washed.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 9, 10, or 11, as appropriate.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will not be required for the sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor, fume hood), the grid identifier, the sample type (e.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-6925-B-FL-RINSE-01 would indicate the filtered rinse water sample taken from the water used to rinse the floor of Grid B in Building 6925.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., the recommended maximum holding time for metals analysis is 180 days from sample collection until extraction).

7.5.3 Demonstration of Clean Closure

Hazardous waste toxicity characteristic metals have been selected for use as indicator parameters to demonstrate clean closure at the RMWMF, as these constituents are present in many of the wastes commonly treated or stored in the Unit. Other wastes treated or stored in the RMWMF typically are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters is of limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor, secondary containment, or interior fume hood surfaces even if these constituents had been released in the past. If residual contamination is present on these surfaces of the RMWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, samples will be analyzed for hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B, or an equivalent method.

Analytical results from floor sweeping (soil) samples will be compared to background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the concentrations of indicator parameters are substantially elevated, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.1 of the site-wide closure plan.

Sandia/DOE will use the same approach to demonstrate clean closure of the future CWMF. Hazardous waste toxicity characteristic metals will be used as indicator parameters to demonstrate clean closure, as these constituents are present and will be present in many of the wastes commonly treated or stored in the Unit. Other wastes that will be treated or stored in the CWMF typically will be regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters will be of limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor, secondary containment, or interior fume hood surfaces even if these constituents had been released in the past. If residual contamination is present on these surfaces of the CWMF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. Analytical results from floor sweeping (soil) samples and from decontamination wash and rinse

water samples will be compared, as discussed above for the RMWMF, to establish appropriate management requirements for the soil and to demonstrate clean closure of the CWMF.

7.5.4 Quality Control

QC for sampling and analysis at the existing RMWMF and future CWMF will be implemented as described in Section F.6 of the site-wide closure plan.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.

7.6 Decontamination and Verification Procedures

Section F.5.2 of the site-wide closure plan presents general decontamination and verification procedures applicable to all Units at the SNL/NM facility. Prior to closure, this Unit-specific plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific plan will be submitted to NMED for approval prior to initiation of closure activities at the existing RMWMF or future CWMF.

8.0 TREATMENT PLAN

Treatment operations for RCRA-regulated wastes treated at the existing RMWMF are described in this section. Operations for the future CWMF are also described.

The following treatment technologies may be used to treat RCRA-regulated wastes at the existing RMWMF and future CWMF:

- Chemical deactivation,
- Thermal deactivation,
- Amalgamation,
- Stabilization,
- Macroencapsulation, and
- Physical treatment.

Sandia/DOE may use each technology to treat any of the wastes in the General Part A that include the particular technology in the process description. Treatment at the existing RMWMF may occur in Buildings 6920, 6921, and 6925. Treatment at the future CWMF may occur in the same buildings. Treatment (except some physical treatment) is and will be conducted in containers; therefore, it is not subject to the miscellaneous unit and environmental performance standards in 20 NMAC 4.1.500/40 CFR 264, Subpart X [10-1-03]. Treatment effectiveness for each waste stream is discussed in Section 8.3.

8.1 Treatment Operations

Waste treatment is performed at the existing RMWMF and will be performed at the future CWMF for one or more of the following reasons:

- To meet land disposal restrictions (LDRs);
- To allow for the safe storage of the waste; and/or
- To meet treatment, storage, or disposal facility (TSDF) requirements.

All of the treatment at the RMWMF is batch treatment performed on single packages of waste (each package is one 55-gallon drum or less, or a single item that may be larger than a drum. Each type of treatment is performed on batches of 500 pounds of waste or less, with the exception of physical treatment, which may occasionally involve very large, heavy items. Liquid wastes are treated in batches of 60 gallons or less. Treatment operations at the future CWMF will be the same as those conducted at the existing RMWMF.

Waste treatment may generate secondary waste streams (treatment residues). RCRA-regulated treatment residues may undergo additional on-site treatment to meet LDRs and/or be sent to an appropriate off-site TSDF.

The waste treatment processes described in this section are effective in addressing hazardous characteristics in RCRA-regulated wastes, including the following:

- Solid items exhibiting the hazardous waste characteristics of ignitability or reactivity may be chemically deactivated to eliminate the characteristic(s).

- Liquid waste exhibiting the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity may be chemically deactivated to remove the characteristic(s).

- Reactive (explosive) wastes may be treated using thermal deactivation techniques.

- Elemental mercury may undergo amalgamation to reduce or eliminate the leaching potential.

- Liquid wastes and particulates containing hazardous waste toxicity characteristic metals (excluding elemental mercury and high mercury subcategories) may be stabilized to reduce or eliminate the leaching potential of the hazardous waste constituents.

- Debris and wastes containing hazardous waste toxicity characteristic metals (excluding elemental and high mercury subcategories defined in 20 NMAC 4.1.800/40 CFR 268) may be macroencapsulated to reduce or eliminate the leaching potential of the hazardous waste constituent(s).

- Solid items with hazardous constituents may be physically separated from larger items, and the size of individual pieces may be reduced.

- Pressurized containers may be punctured or opened to release the contents.

Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes may or may not require further management as hazardous wastes, as discussed in Appendix B, Section B.2.5.

Each waste treatment technology or process listed above is described in the following sections.

8.1.1 Chemical Deactivation

Sandia/DOE perform chemical deactivation in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. The containers vary in size depending on the quantity of waste to be treated, and include laboratory glassware, 5-gallon buckets, and 55-gallon drums.

Sandia/DOE will perform chemical deactivation using the same methods in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

Chemical deactivation refers to a number of chemical processes that can eliminate the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity. Deactivation can be accomplished by several technologies (e.g., neutralization or chemical oxidation). However, the intent of this section is to identify and describe specific methods or treatment trains which may be used at the existing RMWMF and future CWMF to deactivate ignitable wastes defined in 20 NMAC 4.1.200/40 CFR 261.21(a)(2) and (4) [10-1-03], corrosive and reactive wastes defined

in 20 NMAC 4.1.200/40 CFR 261.23 [10-1-03]. Deactivation may or may not result in a final waste form, depending on the process, and may be used as the first in a series of treatment steps.

Deactivation processes are conducted under carefully controlled conditions so that RCRA-regulated waste with the characteristic of reactivity is allowed to react in a slow, nonviolent manner. Allowing the reactive potential of the waste to be dissipated in this manner reduces or eliminates the reactive characteristic of the waste. Deactivation of reactive wastes is typically conducted in small batches under laboratory conditions such that process control can be easily maintained.

- Hydrides, deuterides, and tritides are deactivated by slow addition to an ice water bath.
- Deactivation of water reactive metals such as elemental sodium and lithium involves the slow and controlled addition of an appropriate alcohol/water solution. Alcohol/water addition is maintained until the water reactive potential of the waste has been eliminated.
- Deactivation of pyrophoric metal powders and particulates may be achieved by mixing waste in a portland cement matrix.
- Water-soluble oxidizers in particulate form are slowly dissolved in water to deactivate them as the first step in the treatment process. The resulting solution may undergo further treatment (e.g., neutralization and stabilization).
- Water-soluble concentrated liquid oxidizers such as hydrogen peroxide may be diluted with water in a controlled manner to make them safer to handle before deactivation with an appropriate chemical agent such as iron filings.

Chemical deactivation to remove the characteristic of corrosivity is the process of removing excess acidity or alkalinity from an aqueous liquid waste. Other uses may include pH adjustment to facilitate subsequent treatment; such pretreatment through deactivation may be necessary to prevent corrosive damage to equipment, deter undesirable reactions, and preclude the formation of unwanted byproducts.

Reagents added to achieve a desired pH are combined with liquid waste inside a mixing vessel or directly in the waste container. Common deactivating reagents include, but are not limited to, sodium hydroxide for acid wastes; and phosphoric acid for alkaline wastes. The selection of reagents is dependent on the quantity of reagent required, cost, availability, and the potential byproduct(s). These deactivation processes are conducted under carefully controlled conditions in which the reagent is added to the waste slowly and mixed thoroughly. This allows the reaction to proceed in a nonviolent manner and allows the energy to be dissipated effectively. Ice may be used if needed to cool the mixture during the reaction. In the case of reactions that are expected to be strongly exothermic, wastes may be treated in small batches under laboratory conditions (similar to the deactivation of reactive wastes) such that process control can be easily maintained.

8.1.2 Thermal Deactivation

Sandia/DOE perform thermal deactivation of reactive RCRA-regulated wastes, including batteries, explosives, and explosive components, in a Sandia-designed and tested portable deactivation device that meets the definition of a container in 20 NMAC 4.1.100/40 CFR 260.10. The device is a thick-walled stainless steel vacuum apparatus equipped with an internal heated plate and sensors to measure temperature and pressure. The explosive deactivation device was designed to contain a detonation of 25 grams TNT-equivalents of explosive waste. The inside diameter of the cylinder is 8 inches, and it is 18 inches long. Because the device is portable, it may be used in any of the treatment areas in Building 6920 or 6921. It is shown in Figure 17.

Sandia/DOE will perform thermal deactivation in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

Reactive waste is placed on the plate, inserted into the cold unit, the unit is sealed and filled with an inert atmosphere (e.g., nitrogen), and the temperature of the plate is slowly raised until reaching a temperature at which the explosive being treated decomposes. Personnel use waste characterization data and/or published chemical information (e.g., “DOE Explosives Safety Manual” [DOE, 2002] or other chemical or engineering handbook) to determine the required temperature. The temperature is maintained for two hours to complete the decomposition. The unit is cooled and decomposition gases are vented to a fume hood with a high-efficiency particulate air filtration system.

8.1.3 Amalgamation

Sandia/DOE perform amalgamation of small quantities of elemental mercury in small (e.g., laboratory) containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The amalgamation process for liquid elemental mercury involves mixing liquid mercury waste with a powdered base metal. The amalgamation process immobilizes elemental mercury into a solid leach-resistant form that has minimal potential for emission of mercury vapor.

Sandia/DOE will perform amalgamation in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

The two important operating parameters for effective treatment are: (1) the ratio of base metal to mercury, and (2) the efficiency of mixing. Copper or zinc is typically used as base metals, but tin, nickel, gold, and sulfur may also be used. The base metal may be pretreated with acid to improve the effectiveness of the amalgamation reaction. For the small quantities of mercury that will be treated at the RMWMF, hand mixing the mercury and base metal using a mortar and pestle is sufficient to create an amalgam with uniform properties.

8.1.4 Stabilization

Sandia/DOE perform stabilization in containers in the treatment areas in Buildings 6920 and 6921 at the RMWMF. The treatment may take place within the fume hood(s) that are present in each building. Stabilization is a process of binding hazardous waste metals so that the metals become chemically part of the matrix or are physically bound within the matrix. The primary use of stabilization is to immobilize toxicity characteristic metals but many stabilization agents also eliminate free liquids. Typical waste forms suitable for stabilization include liquids, soils, and particulate-type wastes.

Sandia/DOE will perform stabilization in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

Process equipment for mixing waste and binder materials depends on the type of reagents used and the volume of waste to be treated. In-drum mixing is typically used for large volume waste quantities. Once waste and binder have been thoroughly mixed and placed in a container, the mass is allowed to cure and/or set. Smaller batches may be mixed by hand and allowed to cure in smaller containers (e.g., 5-gallon pails, and tubs and trays of various sizes).

Development of appropriate formulas is waste specific. Stabilization agents for toxic metals may include portland cement, pozzolans, thermoplastics, organic polymers, and clays. However, other waste forms may require proprietary reagents that are available for specific applications. Additional reagents may be added to reduce contaminant leachability, reduce cure and/or set time, and increase strength.

Waste characteristics that are important to the success of the stabilization process for liquids may include volume percent of water, oil, solvents, or other organics; pH; and hazardous waste constituents. Waste characterization data are used to determine whether the waste is amenable to stabilization, any necessary pretreatment requirements, and the appropriate binding agent.

Once stabilization is selected, the binding agent is identified based on chemical compatibility with the waste form and contaminants present. Pretreatment may be required to assure compatibility between the waste and the binding agent (e.g., neutralization of liquid wastes to an acceptable pH range of 5.0 to 11.0). Once the proper binding agent(s) have been identified, bench-scale testing is performed to determine optimum amounts of each agent. In the case of low volume waste streams (e.g., less than approximately 0.26 gallons), bench-scale testing may not be practical and treatment is performed without bench-scale testing using the manufacturer's suggested quantities or by estimating binding agent quantities from previous experience. The stabilization process is performed by combining the predetermined quantities of binding agent(s) with the waste and thoroughly mixing, if appropriate. The resulting mixture is staged to allow an appropriate cure time.

8.1.5 Macroencapsulation

Sandia/DOE perform macroencapsulation in containers in Buildings 6920, 6921, and 6925 at the RMWMF. Macroencapsulation is generally applicable to debris or specific wastes, whereas stabilization (see Section 8.1.4) is generally applicable to liquids, sludges, and particulate-type wastes. Macroencapsulation is the process of completely encasing waste within a polymer

coating or concrete, or within a jacket of inert inorganic materials. The primary use of macroencapsulation is to immobilize wastes such as debris-type solids containing hazardous waste constituents by completely surrounding the waste material with a leach-resistant coating.

Sandia/DOE will perform macroencapsulation in the same manner in treatment areas in Buildings 6920 (north bay), 6921, and 6925 at the future CWMF.

Sandia/DOE perform macroencapsulation using one of three processes:

- Encasing the waste in concrete, typically within a larger container that serves as a mold.

- Coating the waste with polymer agents within a mold. Polymers typically used for macroencapsulation include, but are not limited to, polyethylene, thermosetting plastics, and resins that can be polymerized under ambient temperatures in the presence of a catalyst. Equipment used for macroencapsulation may include molds, polymer extrusion equipment, and resin mixing equipment. In-drum macroencapsulation may also be performed with the drum acting as the mold. Temperature control of polymer macroencapsulation processes is critical and carefully maintained to assure that adequate coating occurs.

  For example, Sandia/DOE perform macroencapsulation with a chemically inert resin (typically polyethylene), using 30-gallon containers (metal baskets). Each basket containing the solid RCRA-regulated waste items is placed in a 50-gallon mold (similar in size and shape to a 55-gallon drum). The basket is designed to fit into the mold with one to two inches of clearance on all sites, the top, and the bottom. The mold containing the basket and waste items is then filled with melted resin that is heated using a commercially available extrusion unit. Each basket is used only once because it becomes encapsulated within the inert resin and is part of the final waste form. After the resin cools and solidifies, the mold is removed, the waste form is turned over and more polyethylene is added to form a final cap on the end. The completed waste form is a cylinder slightly smaller than a 55-gallon drum.

- Placing the waste inside a commercially available container made of an inert resin such as polyethylene. After the wastes and inert void-filler materials are placed in the container, the resin is heated to seal the container and lid (e.g. using a resistance-heated wire system embedded in the container lid). The container may also include an outer metal shell to provide additional structural strength. Sandia/DOE use containers of various sizes, depending on the volume of waste items to be macroencapsulated.

8.1.6 Physical Treatment

Sandia/DOE perform physical treatment (volume reduction) in Buildings 6920 and 6921 at the RMWMF.

Sandia/DOE will perform physical treatment in the same manner in treatment areas in Buildings 6920 (north bay) and 6921 at the future CWMF.

The treatment includes:

- Reducing waste volume by using commercially available tools (e.g., hammers, screwdrivers, wrenches, pliers, saws, drills, cutters, etc.) to separate items with hazardous waste constituents from larger items or from each other, including removal of coating and filler materials. In some cases, the RCRA-regulated waste item may undergo further physical treatment or treatment in containers.

- Removing coating and filler materials (e.g. resins) by dissolution in containers (e.g., trays or pails) in order to facilitate separation of items with hazardous waste constituents from each other or from other items. Dissolution may take place within the fume hood(s) that are present in each building. The dissolved material may undergo further treatment in containers.

- Reducing the size of waste items by using tools (e.g. mallets, cutters, etc.) to crush or cut items into smaller pieces. The pieces may undergo further treatment in containers.

- Puncturing aerosol cans within a container to allow recovery of the contents. The liquid contents of the aerosol cans are collected in the container, and any gaseous propellants are filtered through a carbon filter attached to the container. Liquids collected may undergo further treatment in containers.

- Releasing pressurized contents of containers other than aerosol cans (e.g., gas cylinders). Organic gaseous contents are filtered through a carbon filter. All gaseous contents are vented to a chemical fume hood with a high-efficiency particulate air filtration system.

8.2 Preventing Releases to the Atmosphere

Most of the RCRA-regulated wastes treated at the existing RMWMF and future CWMF are inorganic and are not expected to generate emissions during treatment. Unit personnel perform chemical reactions that could generate emissions (deactivation and stabilization) in a controlled manner as described above to further minimize potential air emissions. Treatment operations that may generate air emissions of gases, vapors, or particulates are conducted in a controlled manner within fume hoods or with other local ventilation if possible. Each fume hood provides an enclosed work area equipped with a localized exhaust system. Air flow from each fume hood passes through a high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The filters do not remove organic constituents entrained in the air flow. Unit personnel employ the practices described in Section 8.2 of the General Part B to prevent releases of organic constituents to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

The existing RMWMF and future CWMF treatment operations do not employ processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA.

8.2.2 Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [10-1-03]. Equipment used in such service at the existing RMWMF and future CWMF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [10-1-03]. The equipment location will be noted in the existing RMWMF and future CWMF records. Equipment use will also be noted in the records.

8.2.3 Subpart CC

Unit personnel follow the practices described in Section 8.2 of the General Part B. Unit personnel do not perform any treatment subject to Container Level 3 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]).

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [10-1-03].

8.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

As required in 20 NMAC 4.1.900/40 CFR 270.23(d) [10-1-03], Sandia/DOE evaluate treatment effectiveness by appropriate methods for each batch of waste treated at the existing RMWMF, and will continue to do in future CWMF operations. In many cases (e.g. stabilization), Unit personnel treat small samples of a batch of waste using a single agent in various proportions or using various agents to determine which is most effective. That process is then used in treating the rest of the waste. Characterization of the treated waste is described in Appendix B (Section B.2.5.2) of the General Part B.

8.3.1 Chemical Deactivation

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for completeness of chemical reaction for solid items that were treated to remove the characteristic of reactivity.
- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Check whether treated waste is an oxidizer as defined in 40 CFR Part 173.

- Visual check for liquids that were treated to remove the characteristic of reactivity.
- Fingerprint chemical check for the presence of sulfides and cyanides if their presence caused the waste to be reactive.
- Fingerprint check for pH of liquids that were treated to remove the characteristic of corrosivity.

8.3.2 Thermal Deactivation

Unit personnel check treatment effectiveness through proper operation of the unit (maintaining specified decomposition temperature for specified length of time). In some cases, personnel may visually check for evidence of chemical reaction (e.g., color change or structural change) in the solid item.

8.3.3 Amalgamation

A sample of each batch of treated waste is analyzed for the presence of mercury using the toxicity characteristic leaching procedure (TCLP) as described in Appendix B.

8.3.4 Stabilization

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for the presence of free liquids.
- Paint filter test to determine whether free liquids are present if the treated waste is amorphous and may contain some liquids.
- Analysis of one or more samples of the treated waste using the TCLP for hazardous waste toxicity characteristic metals. If the stabilization is intended to meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40, the analysis will include underlying hazardous constituents as described in Appendix B.

8.3.5 Macroencapsulation

Unit personnel visually check each macroencapsulated item to verify that it is completely encased in the inert resin or concrete.

8.3.6 Physical Treatment

Unit personnel check treatment effectiveness using one of more of the following methods (depending on the goal of the treatment performed):

- Visual check that item(s) with hazardous waste constituents has(ve) been completely separated from other item(s).

- Visual check that pieces are the desired size.

- Visual check that punctured aerosol cans are empty and the contents are in the container.

- Leaving the container for a time to allow it to continue venting after visual and/or audible evidence indicates it is empty. The length of time would be determined by the size of the container, the contents, and the strength of the evidence.

9.0 REFERENCES

DOE, see US Department of Energy

DHHS, see US Department of Human Health Services

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, “Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*”, dated September 1998.

National Fire Protection Association (NFPA), 2001, "Standard for Water Spray Fixed Systems for Fire Protection", NFPA 15, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, “Standard for the Installation of Sprinkler Systems,” NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, “ Standard for Dry Chemical Extinguishing Systems,” NFPA 17, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,” NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 2004, “Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application,” Revision 7.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 1996, “DOE Explosives Safety Manual” DOE M 440.1-1, U.S. Department of Energy, Washington, D.C.

U.S. Department of Energy (DOE), 2000, “Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring”, dated November 29, 2000.

U.S. Department of Energy (DOE), 2002 “DOE Explosives Safety Manual, LLNL Work Smart Standards Version” Lawrence Livermore National Laboratory, Livermore California

U.S. Department of Health and Human Services (DHHS), 1994. “NIOSH Pocket Guide to Chemical Hazards”, National Institute for Occupational Safety and Health.

Sandia National Laboratories/New Mexico

Module IV
Reserved

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page left intentionally blank.

Sandia National Laboratories/New Mexico
Auxiliary Hot Cell Facility
Part B Permit Application

Module V

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... AHCF-iii
LIST OF FIGURES ..... AHCF-iv
ACRONYMS AND ABBREVIATIONS ..... AHCF-v
1.0 GENERAL UNIT OPERATIONS AHCF-2
1.1 Designated Waste Management Areas AHCF-2
1.1.1 Hot Cell AHCF-3
1.1.2 Work Area AHCF-3
1.1.3 Storage Silos AHCF-4
1.1.4 Container Storage AHCF-4
1.2 Unit Operations AHCF-5
1.2.1 Operation of Containment Systems AHCF-5
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes AHCF-5
1.2.3 Preparedness and Prevention AHCF-6
1.2.3.1 Required Equipment AHCF-6
1.2.3.2 Testing and Maintenance of Equipment AHCF-7
1.2.3.3 Access to Communications or Alarm Systems AHCF-7
1.2.4 Hazards Prevention AHCF-7
1.2.4.1 Preventing Hazards in Unloading AHCF-7
1.2.4.2 Preventing Runoff or Flooding AHCF-8
1.2.4.3 Preventing Contamination of Water Supplies AHCF-8
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages AHCF-8
1.2.4.5 Preventing Undue Exposure AHCF-8
1.2.4.6 Preventing Releases to the Atmosphere AHCF-9
1.3 Container Storage Practices AHCF-9
1.3.1 Container Types and Labeling AHCF-9
1.3.2 Container Handling AHCF-10
1.3.2.1 Condition of Containers AHCF-10
1.3.2.2 Aisle Space and Storage Configuration AHCF-10
1.3.2.3 Compatibility of Waste with Containers AHCF-10
1.3.2.4 Presence of Liquids in Containers AHCF-10
1.4 Treatment Operations AHCF-10
2.0 UNIT DESCRIPTION AND INFORMATION AHCF-12
2.1 Security Procedures and Equipment AHCF-12
2.1.1 Barriers and Means to Control Entry AHCF-12
2.1.2 Warning Signs AHCF-13
2.2 Traffic Pattern, Volume, and Controls AHCF-13
2.2.1 Traffic Patterns AHCF-13
2.2.2 Traffic Volumes AHCF-13
2.2.3 Traffic Control Signals AHCF-13
2.3 Unit Location Information AHCF-14
2.3.1 Seismic Standard AHCF-14
2.3.2 Floodplain Standard AHCF-14
2.4 Topographic Maps AHCF-14
2.5 Groundwater Monitoring AHCF-15

TABLE OF CONTENTS (Concluded)

3.0 WASTE ANALYSIS PLAN AHCF-16
4.0 INSPECTION plan AHCF-17
5.0 PERSONNEL TRAINING AHCF-20
6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE AHCF-21
7.0 CLOSURE PLAN AHCF-24
7.1 Unit Description AHCF-24
7.2 Estimate of Maximum Waste in Storage AHCF-25
7.3 Closure Conditions AHCF-25
7.4 Closure Activities and Schedule AHCF-26
7.5 Sampling and Analysis Plan AHCF-27
7.5.1 Sampling and Analysis Scope AHCF-27
7.5.2 Sampling Methodology AHCF-27
7.5.2.1 Sample Locations AHCF-27
7.5.2.2 Sample Collection AHCF-29
7.5.2.3 Sampling Equipment AHCF-29
7.5.2.4 Sample Equipment Decontamination AHCF-29
7.5.2.5 Sample Identification AHCF-30
7.5.2.6 Sample Preservation and Holding Time AHCF-30
7.5.3 Demonstration of Clean Closure AHCF-30
7.5.4 Quality Control AHCF-30
7.5.5 Data Management and Reporting AHCF-31
7.6 Decontamination and Verification Procedures AHCF-31
8.0 TREATMENT PLAN AHCF-32
8.1 Treatment Operations AHCF-32
8.1.1 Chemical Deactivation AHCF-33
8.1.2 Stabilization AHCF-34
8.1.3 Macroencapsulation AHCF-35
8.1.4 Physical Treatment AHCF-36
8.2 Preventing Releases to the Atmosphere AHCF-36
8.2.1 Subpart AA AHCF-36
8.2.2 Subpart BB AHCF-37
8.2.3 Subpart CC AHCF-37
8.3 Treatment Effectiveness AHCF-37
8.3.1 Chemical Deactivation AHCF-37
8.3.2 Stabilization AHCF-38
8.3.3 Macroencapsulation AHCF-38
8.3.4 Physical Treatment AHCF-38
9.0 REFERENCES AHCF-39

LIST OF TABLES

Table No.	Title
1	Fire Suppression System at the Auxiliary Hot Cell Facility
2	Auxiliary Hot Cell Facility Inspection Criteria and Frequency
3	Auxiliary Hot Cell Facility Emergency Equipment and Locations
4	Auxiliary Hot Cell Facility Emergency Coordinator List
5	Auxiliary Hot Cell Facility, Summary of Random Sampling Program
6	Auxiliary Hot Cell Facility, Random Sampling Grids

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Auxiliary Hot Cell Facility at Sandia National Laboratories/ New Mexico
2	Location of the Auxiliary Hot Cell Facility (AHCF) in Technical Area (TA) V
3	Auxiliary Hot Cell Facilities, Resource Conservation and Recovery Act-Regulated Waste Management Areas
4	Auxiliary Hot Cell Facility, Traffic Routes and Controls
5	Topographic Map, Auxiliary Hot Cell Facility
6	Auxiliary Hot Cell Facility, Access Control Features
7	Auxiliary Hot Cell Facility, Drainage Control Features
8	Auxiliary Hot Cell Facility, Evacuation Routes
9	Auxiliary Hot Cell Facilities, Emergency Response and Access Information
10	Auxiliary Hot Cell Facility, Emergency Response and Access Information (Detail)
11	Auxiliary Hot Cell Facility, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
AHCF	Auxiliary Hot Cell Facility
DOE	U.S. Department of Energy
ft	foot/feet
HEPA	high-efficiency particulate air
HSWA	Hazardous and Solid Waste Amendments
ID	inner diameter
in.	inch(es)
m^3	cubic meter(s)
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	technical area
TSDF	treatment, storage, and disposal facility
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO
AUXILIARY HOT CELL FACILITY
PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Auxiliary Hot Cell Facility (AHCF) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage and treatment operations at the AHCF that require a permit. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application", hereinafter referred to as the General Part B. Together, information provided in this module, in the General Part B, and in appendices to the General Part B meet the applicable requirements for the AHCF that are specified in 20 NMAC 4.1.500/40 CFR 264 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270 [10-1-03].

Sandia/DOE also prepared a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0" (SNL/NM, 2004), hereinafter referred to as the General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the General Part B and Unit-specific Part B modules, including this AHCF Part B Permit Application.

In the General Part A, the General Part B, its appendices, and this module, a Unit to be permitted may sometimes be referred to as a "facility" (e.g., Auxiliary Hot Cell Facility). The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The AHCF occupies 5578 square feet in Building 6597 in Technical Area (TA)-V. Operations include storage of RCRA-regulated wastes in containers, repackaging wastes, and treating the wastes as needed to render them more suitable for shipment to off-site treatment and/or disposal facilities. All of the RCRA-regulated wastes listed in the General Part A may be managed at the AHCF. Sandia/DOE currently operate the AHCF under interim status in accordance with the terms of the most recent Part A submitted to the New Mexico Environment Department (NMED) (November 29, 2004) and the most recent Part B permit request submitted to NMED (November 29, 2004).

1.0 GENERAL UNIT OPERATIONS

This section provides general descriptions of the AHCF waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage practices. Treatment practices are discussed in Section 8.0 of this module.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the General Part B, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [10-1-03].

1.1 Designated Waste Management Areas

The location of the AHCF at SNL/NM is shown on Figures 1 and 2. The location of the AHCF within TA-V is shown on Figure 2. The AHCF includes four designated WMAs within the high bay of Building 6597: the hot cell; the work area near the hot cell (including the fume hood); the storage silos; and container storage (Figure 3). The high bay of Building 6597 is a concrete and steel structure, with concrete masonry unit (CMU) walls and a concrete floor. The roof consists of steel joists covered with a metal deck, rigid insulation, and a single-ply roof membrane. The east side of the high bay is equipped with an overhead crane that can be used to move large items between the hot cell, the storage silos, and the work area. The floor of the work area is coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor. The floor of the container storage area will be covered with a similar coating. The high bay area of Building 6597 is also equipped with a system of floor trenches covered with steel plates or grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

Containers holding RCRA-regulated liquid wastes in the AHCF WMAs will be stored on portable spill pallets or pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives and other liquids. The containers of liquids (typically 5- to 30-gallon capacity) will be stored on the grating. Any liquids released from the containers will drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [10-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3) [10-1-03].

Each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

The containers are stored indoors and are protected from precipitation by the building, and by the slope of the asphalt pavement and gravel-covered soil surface outside the building that directs storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/ 40 CFR 264.175(b)(4).

The fume hood in the work area is equipped with a negative pressure ventilation system. In addition, a flexible exhaust hose can be attached to the same system, allowing for localized negative pressure ventilation from the work area. The air flow from the ventilation system passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The following sections provide descriptions of the location and capacity of each WMA. Treatment practices are summarized in Section 1.4 and discussed in detail in Section 8.0 of this module.

1.1.1 Hot Cell

The hot cell is located in the high bay area of Building 6597. Waste management activities include repackaging RCRA-regulated wastes for shipment to off-site TSDFs, and reducing waste volume by using tools to separate items with hazardous waste constituents from larger items. Outside overall dimensions of the hot cell are 16 feet (ft), 8 inches (in.) square and 16 ft, 2 in. high. Inside space dimensions are 100 square feet with a height of 13-ft, 10-in. The inside surfaces are lined with stainless steel. An 18-in. thick concrete foundation mat supports the hot cell. The hot cell walls are constructed of inner and outer precast concrete panels that are held apart by threaded rods. The space between the panels is filled with sand. The roof sections are also constructed of reinforced concrete panels with sand between them. Each individual roof panel is designed to structurally support one 5,000-pound point load. Each roof section supports a roof port and roof plug. The hot cell is equipped with manipulator arms that allow personnel to handle items remotely. The storage capacity of the hot cell is equivalent to 900 gallons of RCRA-regulated waste.

1.1.2 Work Area

The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Activities include treatment and storage. Treatment includes deactivation, stabilization, macroencapsulation, and physical treatment. Personnel also repackage wastes for shipment to off-site TSDFs. The work area may be used for storage of up to 1100 gallons of RCRA-regulated waste.

From time to time, a temporary tent-like room may be erected in the work area north of the hot cell and east of the permanent shield wall to accommodate large RCRA-regulated waste items and containers. If the RCRA-regulated item or container must be handled remotely, the temporary room will be built directly against the permanent shield wall to allow the use of the manipulators at the shield wall. Each time the temporary room is erected, package-specific considerations will determine details of the design; however, basic construction will consist of polyvinyl chloride or metal framing, clear or translucent plastic roof and walls, and plastic doors. The temporary room will operate at a slight negative pressure.

A 6-ft-wide walk-in fume hood is located in the work area northeast of the hot cell; it can accommodate two 55-gallon drums placed side by side. Unit personnel treat and repackage RCRA-regulated wastes in the fume hood. The fume hood is included in the storage capacity for the overall work area.

1.1.3 Storage Silos

Four 10-in. inside diameter (ID), 15-ft deep floor silos and two 30-in.-ID, 15-ft-deep floor silos are located in the work area north of the hot cell and east of the permanent shield wall (Figure 3). These silos have removable locking-type shield plugs. The tops of the silos are raised slightly above the general floor level to reduce the possibility for the entry of water into the silo.

Two additional storage silos are located within the hot cell. Each silo is 10-in. ID. One silo is 15-ft deep and the other is 11-ft, 8-in. deep.

Each silo is constructed of concrete, and each is lined with a removable welded stainless steel sleeve. The sleeves do not provide secondary containment for the small quantities of liquid wastes that may be stored in the silos; secondary containment is provided by outer storage containers. The silos are typically used only for storage of RCRA-regulated wastes that exhibit high external radiation dose rates and therefore present hazards to personnel. The maximum waste storage capacity of the silos is 1,456 gallons.

1.1.4 Container Storage (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/ 40 CFR, Subpart I)

Containers of RCRA-regulated waste will be stored in the high bay, south and west of the hot cell. The footprint of the storage area will vary, depending on the quantity and configuration of the wastes. The floor of the storage area will be coated with an epoxy-based chemical resistant coating that forms a continuous protective barrier over the concrete floor.

The area is equipped with a system of floor trenches covered with grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

The waste storage capacity is 3,520 gallons.

1.2 Unit Operations

The AHCF WMAs will be used to store any of the wastes bearing U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers listed in the General Part A. Many of the wastes may also be treated in the AHCF WMAs; specific treatment operations are discussed in Sections 1.4 and 8.0 of this Module.

Information regarding operations requiring a permit at all RCRA-regulated Units at SNL/NM is included in Section 1.1 of the General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.500/40 CFR 270.14[b][8][ii] and 270.15[a] and [b]; 20 NMAC 4.1.500/40 CFR 264.175[b][5])

Liquid wastes released from individual containers will accumulate in the spill pallets. Unit personnel will begin taking action to evaluate and remove accumulated liquids in the spill pallets upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

DOE/Sandia do not store bulk liquids in the storage silos; any liquid wastes will be present in small containers within larger containers that provide secondary containment.

The floor trenches are not used for secondary containment, and Sandia/DOE do not anticipate that liquid RCRA-regulated wastes would enter the trenches. RCRA-regulated waste liquids would only be released from containers of stored liquid wastes upon the (unlikely) failure of the spill pallets, and the largest single container would contain 122 gallons. The liquid would be contained in the trench, and would be handled as described above upon discovery.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177; 20 NMAC 4.1.900/ 40 CFR 270.14[b][9] and 270.15[c] and [d])

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the AHCF. Sources of ignition that may be present at the AHCF are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the General Part B. Additional AHCF-specific features, potential ignition and reaction sources, precautions, and practices include:

- Ignitable and reactive wastes are segregated from other wastes within the storage area. The containers are labeled as described in Section 1.2.1 of the General Part B. Unit personnel typically place a portable sign near the wastes, use prominent labels, or use another method to assist in identifying them as ignitable and/or reactive.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas; each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Water-reactive wastes are not routinely stored in the Unit. If water-reactive wastes are present, they will be isolated from water contact as described in Section 1.1.2.1 of the General Part B, and their location will be identified through the use of signs, labels, or some other method.

- Forklifts are not used for waste movement near treatment operations involving ignitable or reactive wastes to minimize potential sources of ignition while containers are or may be open.

- Wastes are mixed together on a very limited basis during the treatment and repackaging operations at the Unit. Ignitable and reactive wastes are treated or mixed on a case-by-case basis. Unit personnel plan each such operation carefully to identify the hazards and potential consequences. Personnel use waste characterization data and/or published chemical information (e.g., "NIOSH Pocket Guide to Chemical Hazards" [DHHS, 1994], or other chemical or engineering handbook) for each waste in the planning process. Personnel then conduct the operations according to the plan in order to control the hazards and prevent uncontrolled reactions. Treatment operations are described in Section 8.0 of this module.

1.2.3 Preparedness and Prevention (20NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the AHCF.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

Information about fire hydrants is provided in Section 1.1.3.1 of the General Part B. The fire hydrants closest to the AHCF are shown in Figure 9.

The high bay of Building 6597 is equipped with an automatic fire suppression system; summarized below.

Table 1
Fire Suppression System at the Auxiliary Hot Cell Facility

Building	Applicable NFPA Standard[a]	Sprinkler Design Occupancy Classification	System Type	Sprinkler Actuation[b]
6597	13	Storage	Automatic sprinkler, wet pipe	GB/FS

[a] National Fire Protection Association (NFPA), 2002
[b] Sprinklers are either glass bulb or fusible solder type, typically designed to open at temperatures of 155ºF or higher.

Information on other required equipment located at the AHCF is provided in Section 6.0 and Table 3 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the AHCF is provided in Appendix C of the General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the AHCF is provided in Section 1.1.3.3 of the General Part B and in Section 6.0 of this module.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the AHCF to prevent hazards. Additional information applicable to the AHCF and all other Units at SNL/NM is included in Section 1.1.4 of the General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

AHCF personnel employ the practices described in Section 1.1.4.1 of the General Part B to prevent hazards in unloading. Unit personnel will typically perform loading and unloading activities just inside the rollup door on the north side of the WMA (Figure 6). The floor is level and in good condition, and there is sufficient room for operating the vehicles and equipment.

Drums and other containers of RCRA-regulated waste will typically be strapped together on a pallet before being loaded onto vehicles. Containers will typically be transported within the Unit with drum dollies or pallet jacks.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

The land surrounding the AHCF slopes gently toward the west. Sheet-flow runon of surface water from surrounding areas outside the TA is prevented from entering the TA by a diversion berm east of TA-V that diverts storm water to the north and south.

The floor of the high bay in Building 6597 is slightly higher than the surrounding ground, serving to direct storm water away from the building. The asphalt and concrete pavement around the AHCF slopes toward a storm drain that directs stormwater toward the west.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated wastes at the AHCF will affect water supplies, as described in Section 1.1.4.3 of the General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B.

The AHCF is equipped with a minimum of 90 minutes of general emergency lighting along the paths of egress. With respect to waste handling, backup power to the chain hoist will be required only during the short periods that the bridge crane is being used for an in-air transfer of RCRA-regulated waste. The bridge crane locks in place and is inoperable during a power outage. Portable generators can provide backup power to the chain hoist whenever the bridge crane is in use. The chain hoist, and tethers if necessary, will be used to lower any suspended packages to a safe configuration until power is restored unless leaving the package suspended is considered a safe configuration. No other AHCF systems require redundant power supplies.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

AHCF personnel employ the practices described in Section 1.1.4.5 of the General Part B to prevent undue exposure.

The enclosed work area and localized ventilation system in the fume hood and the local ventilation system in the work area provide additional protection for Unit personnel performing treatment operations. Anticipated emissions from treatment operations are discussed in Section 8.2.

The ACHF has several features (e.g. shielding and remote operation capabilities) that provide protection for personnel managing RCRA-regulated wastes that exhibit high external radiation dose rates. The silos will typically be used to store such wastes, providing additional protection for Unit personnel.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

AHCF personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere during storage.

Subpart AA

AHCF storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03]. Equipment used in such service at the AHCF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [10-1-03]. The equipment list will be maintained in the AHCF records. Equipment use will also be noted in the records.

Subpart CC

Unit personnel follow the practices described in Section 1.1.4.6 of the General Part B and maintain compliance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the WMAs at the Unit.

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [10-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264 Subpart I)

Container storage practices applicable to the AHCF are presented in the following sections.

1.3.1 Container Types and Labeling

Containers used for storage of RCRA-regulated wastes at the AHCF are most often strong, tight containers such as steel drums, steel boxes, wooden crates, plastic containers, casks, and cylinders. Unit personnel use the container labeling practices described in Section 1.2.1 of the General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

AHCF personnel employ the container handling practices described in Section 1.2.1 of the General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the AHCF is maintained as indicated in Section 1.2.2.1 of the General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

AHCF personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than three pallets high. Box-shaped containers may be stacked three high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

1.3.2.3 Compatibility of Waste with Containers (20 NMAC 4.1.500/40 CFR 264.172)

AHCF personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

AHCF personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the General Part B before storing containers in areas that are not equipped with secondary containment.

1.4 Treatment Operations

RCRA-regulated wastes are treated at the AHCF by the following methods:

- Chemical deactivation (performed in the work area, including the fume hood).
- Stabilization (performed in the work area, including the fume hood).

- Macroencapsulation (performed in the work area, including the fume hood, and/or the hot cell).

- Physical treatment (performed in the work area, including the fume hood, and/or the hot cell).

The treatment practices are discussed in detail in Section 8.0 of this module.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of 20 NMAC 4.1.5 and .900/40 CFR 264 270 [10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [10-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of the General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the AHCF.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The doors to Building 6597 are kept closed and locked. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the SNL/NM Technical Area gates during non-operational hours.

Unit personnel have Sandia-issued badges. Individuals who do not have Sandia-issued badges are escorted. These procedures limit access to the AHCF WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

The AHCF is located in TA-V (Figures 1 and 2). TA-V is enclosed by an 8-ft-high chain-link fence topped with barbed wire. Regular entries into and exits from TA-V are through Building 6577, the Perimeter Access Building, or through the adjoining vehicle gate. TA-V

access control procedures assure that only properly identified and authorized persons, vehicles, and property are allowed entrance to and exit from TA-V.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

Building 6597 and the entrance to the AHCF are posted with “Danger: Unauthorized Personnel Keep Out” (or functionally equivalent) signs. The signs contain the warning in English and Spanish are legible from a distance of 25 ft, and can be seen from any approach to the part of Building 6597 that houses the AHCF.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the AHCF include Wyoming Boulevard, Hardin Boulevard (formerly O Street), P Street, and Pennsylvania Avenue. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. A two-lane paved road to TA-V turns southwestward off Pennsylvania Avenue at a point just over 5 miles south of the Wyoming Entrance gate.

Waste transport vehicles travel along a 2-lane asphalt-paved drive to enter TA-V from the two-lane paved road as shown on Figures A-4 and A-6 in Appendix A of the General Part B. Vehicles must stop at a gate prior to entering or leaving TA-V. Within TA-V, waste is transported on asphalt- or concrete-paved surfaces (Figure 4).

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, Hardin Boulevard, and P Street are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Fewer than 5 vehicles typically travel to the AHCF per week. These include flatbed trucks and trailers carrying supplies and containers of RCRA-regulated waste to and from the AHCF.

2.2.3 Traffic Control Signals

Within TA-V, there are no traffic control signals or signs. Vehicles must stop at the vehicle gate prior to entering or leaving TA-V. Vehicle presence within TA-V is limited to waste transport and other work vehicles. Therefore, signals or signs are not necessary to control traffic within TA-V.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii]; 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the AHCF are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the AHCF are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [10-1-03]).

- Surface waters, including intermittent streams, near the AHCF are shown on Figure A-2 in Appendix A of the General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iii] [10-1-03]).

- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [10-1-03]). The area surrounding the AHCF is occupied by other Sandia-controlled operations (industrial land use).

- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [10-1-03]).

- Legal boundaries of SNL/NM (including the AHCF) is provided as Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [10-1-03]).

- Access control features at the AHCF (e.g., fences, gates) are shown on Figures 5 and 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the AHCF are shown on Figure A-2 in Appendix A of the General Part B and Figure 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [10-1-03]).

- The location of the AHCF and associated WMA structures, loading and unloading areas, roads, and sanitary sewers at the AHCF are shown on Figures 5 and 6 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [10-1-03]).

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [10-1-03].

- Locations of the AHCF and AHCF WMAs are shown on Figures 3 and 5 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the AHCF. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03], SNL/NM has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the AHCF, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c]; 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of the Sandia/DOE comprehensive Part B permit request. The AHCF is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor is the AHCF likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 20 NMAC 4.1.900/ 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, “General Waste Analysis” [10-1-03], waste analysis requirements applicable to all Units, including the AHCF, are addressed in Appendix B of the General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03] require that waste management areas (WMAs) and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated wastes to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the “Site-Wide Inspection Plan”, provided as Appendix C of the General Part B. AHCF personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 2, with the inspection criteria and frequency. The items listed in the table are inspected in each AHCF WMA.

Automatic fire suppression systems are included in Table 2. Unit personnel check to see that the systems are present. Sandia/DOE personnel also test the systems based on the requirements of NFPA 25 “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” (NFPA, 2002) as described in Section 1.1.3.2 of the General Part B.

Performing inspections of all areas at the AHCF where RCRA-regulated wastes are handled may expose Unit personnel to unnecessary radiation if the wastes exhibit high external radiation doses. In order to maintain the radiation exposure to levels as low as reasonably achievable (ALARA), Sandia/DOE will conduct alternative inspections of the storage silos when such wastes are present. Instead of directly inspecting the wastes while they are stored in the silos, Unit personnel will visually inspect the empty silos and the RCRA-regulated waste containers or packages before the wastes are placed in the silos, and will inspect the containers when they are removed from the silos. If Unit personnel do not observe any indications of deterioration in the empty silos, or damage to or release from the RCRA-regulated waste items as they are removed from the silos, the lack of visible evidence of release will be considered sufficient to determine that there have not been releases of RCRA-regulated wastes.

The visual inspections of all areas at the AHCF may be conducted via camera from a remote area if needed to maintain ALARA conditions for the Unit personnel.

Table 2
Auxiliary Hot Cell Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 3 "Emergency Equipment and Locations" in this module for additional information**		
Eye wash / safety shower	Operational and in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, and in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Fire alarm pull station(s)	Present, accessible, and in good condition	Monthly
Fire alarm(s)	Present	Monthly
Telephone(s)	Present and operational	Monthly
Fire extinguisher(s)	Present, charged, accessible, and in good condition	Monthly
Fire sprinklers and system	Present, appears to be in good condition, sprinklers not obstructed	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Building / storage area floor	Clean, no spills, cracks, or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Building walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Building ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Building lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Overhead crane	Present, appears to be in good condition	Weekly when wastes are managed. Monthly otherwise.
Storage silos	Liner in good condition, no cracks or visible deterioration	Prior to waste storage. Monthly otherwise when empty.
Storage silo covers	In good condition, no cracks or excessive wear	Prior to waste storage. Monthly otherwise.
Loading and unloading areas	Good condition, safe working surface, free of cracks, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
Treatment area	Good condition, clean, uncluttered, no spills	Prior to treatment. Monthly otherwise.

Table 2 (Concluded)
Auxiliary Hot Cell Facility Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
OPERATING AND STRUCTURAL EQUIPMENT (cont)		
Fume hood	Good condition, clean, no deterioration	Daily when used for waste treatment. Monthly otherwise.
Treatment equipment (e.g., hand tools, containers)	Good condition (i.e., no deterioration)	Prior to treatment (consumable items) or daily when and where wastes are treated (tools). Monthly otherwise.
SECURITY DEVICES		
Warning signs	Present and in good condition	Monthly
Doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled.* Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled.* Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled.* Weekly otherwise.
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled.* Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled.* Weekly otherwise.
Location	Correct aisle space, correct stacking (3 maximum)	Check individual containers as they are handled. Weekly otherwise.

* Containers will be inspected prior to placement into and immediately following removal from a storage silo.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C. The inspection plan (Appendix C and this section) and inspection records for the current calendar year are maintained in Building 6597 or in the TA-V electronic facility documentation system. Inspection records for previous calendar years are maintained in department offices of AHCF personnel or the SNL/NM Records Center.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900/ 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16, [10-1-03] "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and maintain safely those areas used for managing RCRA-regulated waste. The training program applies to all employees of the DOE, Sandia, and any subcontractors who have responsibility for the day-to-day management of RCRA-regulated waste at the AHCF.

AHCF personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided as Appendix D of the General Part B.

Only the following job descriptions identified in Appendix D, Table D-2 are applicable at the AHCF: Training Director, Project Leader, Emergency Coordinator, Chemist, Field Technician, Special Projects Staff, Inspector, and Unit Operations Support Staff.

Training records for AHCF personnel are maintained in the department offices of AHCF personnel.

6.0 CONTINGENCY PLAN AND EMERGENCY RESPONSE

Emergency response requirements for permitted units are specified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart D [10-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03]. The Sandia /DOE "Site-Wide Contingency Plan" is included as Appendix E of the General Part B. Supplemental AHCF-specific information is included in this section, in Figures 8, 9, and 10, and in Tables 3 and 4 of this module. Current copies of the site-wide contingency plan and this supplemental information are maintained in department offices of AHCF personnel, in the TA-V emergency control room, and at the SNL/NM Emergency Operations Center.

The AHCF is located in the northeast (high bay) part of Building 6597 in TA-V at SNL/NM and is used to repackage, store, and treat RCRA-regulated wastes. Building 6597 is a concrete masonry unit building; the high bay area of the building has a roof height of 35 feet. The AHCF includes four WMAs:

- The hot cell is constructed of precast concrete with a stainless steel lining. A permanent shield wall extends north of the cell. The cell is used for repackaging and treatment.
- The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Waste management activities in the work area include storage and treatment and may require the use of a temporary room. A 6-ft-wide walk-in fume hood in the work area can be used for storage and treatment.
- Eight floor silos (six in the work area and two in the cell) can be used for storage.
- Containers of RCRA-regulated waste may also be stored in the high bay, typically south and west of the hot cell..

RCRA-regulated wastes bearing the U.S. EPA Hazardous Waste Numbers listed in the General Part A may be stored and/or treated at the AHCF WMAs. Wastes will be segregated according to compatibility groups.

During an emergency, Unit personnel will evacuate the unit as described in Section E.5.2 of the site-wide contingency plan. During an emergency, Sandia security officers provide unimpeded access to the AHCF for authorized personnel as directed by the IC. Security officers also provide additional emergency assistance as required by the IC. Personnel who are authorized to enter TA-V in case of emergencies are members of the SNL/NM Emergency Response Organization, including medical personnel, the KAFB fire department, and KAFB security police.

Figure 8 presents the evacuation routes for the AHCF. Figures 9 and 10 present emergency response and access information for the AHCF. Table 3 lists the emergency equipment typically available at the AHCF. Table 4 lists the emergency coordinators for the AHCF.

Table 3
Auxiliary Hot Cell Facility, Emergency Equipment and Locations

Building 6597

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Fixed shower/eyewash	Near north entrance to Building 6597 high bay
	Absorbent (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	Near north entrance to Building 6597 high bay
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage in Building 6597
	Recovery drums and containers	In equipment storage in Building 6597
	Personal protective equipment (goggles and/or safety glasses, gloves)	Near north entrance to Building 6597 high bay
Internal Communication and Alarm System	Voice communication	
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One near each exit door Building 6597 high bay
	Audible fire alarms	Located throughout the building
External Communication System	Telephones	Near north entrance to Building 6597 high bay
	Emergency public address system	Near north entrance to Building 6597 high bay
	Fire alarm pull stations (pulling handle sends signal to KAFB fire department, does not actuate sprinklers)	One near each exit door in Building 6597 high bay
Fire Extinguishers	Portable (A-B-C)	By personnel doors on the east, south, and west walls
Fire Suppression	Automatic wet-pipe sprinkler system with heat-actuated sprinklers	Coverage throughout the high bay in Building 6597
	Manually-operated fire suppression system (Halon replacement)	Hot Cell
	Sprinkler head	Under fume hood
	Branch line from the Building 6597 sprinkler system	Temporary Room
	Water supplied by fire hydrant	One hydrant, location shown on Figure 9

KAFB Kirtland Air Force Base

Table 4
Auxiliary Hot Cell Facility, Emergency Coordinator List

November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	John Garcia Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 284-3538 (office) (505) 540-5194 (pager)	(505) 243-5914
First Alternate	Don Hanson Sandia National Laboratories P.O. Box 5800 Albuquerque, New Mexico	(505) 844-6969- (office) (505) 530-0409 (pager)	(505) 286-2364

One or more of these personnel are routinely available during normal work hours (8:00 am to 4:30 pm, Monday through Friday).

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I, [10-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the General Part B. The site-wide plan in Appendix F includes a description of the SNL/NM facility, waste descriptions, closure performance standards, general closure methods, a sampling and analysis plan (SAP), a general closure schedule, procedures for amendment of the plan, closure certification and letter, survey plat, and post-closure requirements. Unit-specific information for closure of the AHCF is included in this section.

7.1 Unit Description

Sandia/DOE use the AHCF to repackage, store, and treat RCRA-regulated wastes. The AHCF is located in the northeast (high bay) part of Building 6597 (see Figure 11) in TA-V at SNL/NM. Building 6597 is a concrete masonry unit building. The AHCF includes four designated WMAs within the high bay of Building 6597: the hot cell; the work area near the hot cell (including the fume hood); the storage silos; and a container storage area:

- The hot cell is constructed of precast concrete and is lined with stainless steel. A permanent shield wall extends north of the cell. The cell is used for repackaging and treatment.

- The work area is located in the corner of the high bay north and east of the hot cell and the permanent shield wall. Waste management activities in the work area include storage and treatment The floor of the work area is coated with an epoxy-based chemical-resistant coating that forms a continuous protective barrier over the concrete floor. The work area includes a 6-ft-wide walk-in fume hood, which is also used for storage and treatment of waste in containers. The fume hood is equipped with a negative-pressure ventilation system. A flexible exhaust hose can be attached to this system, allowing localized negative-pressure ventilation from the work area. Air flow from the ventilation system passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filter train effectively removes particulates entrained in the air flow.

- Eight floor silos (six in the work area and two in the hot cell) can be used for storage. Each silo is constructed of concrete and lined with a removable welded stainless-steel sleeve.

- Containers of RCRA-regulated waste may also be stored in the southern half of the high bay. The footprint of the storage area will vary, depending on the quantity and configuration of waste containers (e.g., containers may also be stored in the northwest portion of the high bay). The floor of the storage area is coated with an epoxy-based chemical-resistant coating that forms a continuous protective barrier over the concrete floor. The high bay area of building 6597 is also equipped with a system of floor trenches covered with steel plates or grating. These trenches are not used to provide secondary containment for management of RCRA-regulated wastes.

7.2 Estimate of Maximum Waste in Storage (20 NMAC 4.1.500/40 CFR 264.112[b][3])

The maximum volume of RCRA-regulated waste in storage at any time at the AHCF is estimated at 6,976 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The maximum total waste volume is broken down as follows:

Building 6597 hot cell	900 gallons
Building 6597 work area	1,100 gallons
Building 6597 container storage area:	3,520 gallons
Building 6597 storage silos:	1,456 gallons

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 in the site-wide closure plan , closure activities specified in this plan assume the following conditions were met during the operational life of the AHCF:

- Waste handling and treatment activities that involved opening containers of RCRA-regulated waste were confined to the interiors of the AHCF WMAs. If contamination occurred, it would have been confined to those areas.

- Treatment activities were conducted in a controlled manner, minimizing the potential for releases of RCRA-regulated wastes or hazardous waste constituents.

- If RCRA-regulated wastes or hazardous waste constituents were inadvertently released into the local exhaust systems during treatment activities, they would be only be present in the system up to the first filter.

- Enclosed WMAs (e.g. hot cell and floor silos) are considered independently of other WMAs when evaluating the potential presence of RCRA-regulated wastes or hazardous waste constituents.

- Steel plates over floor trenches were moved only as needed for maintenance. RCRA-regulated wastes or hazardous waste constituents are not present in any section of floor trench that has been covered with steel plates unless there has been a release of RCRA-regulated wastes into that section of trench.

- Covers to each silo have been opened only as needed for storage operations. RCRA-regulated wastes or hazardous waste constituents are not present in each silo unless there has been a release of RCRA-regulated wastes into that silo.

- The container storage area occupied the entire south half of the high bay, and containers were occasionally stored in the northwest portion of the high bay.

- RCRA-regulated wastes or hazardous waste constituents could not be present except in areas in the high bay where wastes were managed.

- The interior floor in the high bay was maintained to retain its integrity by following established maintenance and inspection procedures, breaches of protective coatings did not occur, and a small amount of soil will be present on the floor due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the AHCF. With respect to the individual WMAs, Sandia/DOE will use the following approach:

- The floor of the hot cell will be visually examined for evidence of deterioration and releases. The floor will be decontaminated by washing, as described in Section F.5 of the site-wide plan.

- Equipment within the work area will be evaluated to determine whether it is more effective to remove it or decontaminate it. Items that are most likely to be removed include local exhaust systems (up to the first filter), filters, and portable equipment. Items that are most likely to be decontaminated include the interior of the fume hood. The floor of the work area will be decontaminated by sweeping and washing, as described in Section F.5 of the site-wide plan.

- The liners of the silos will be visually examined for evidence of deterioration and releases. The silos are isolated from the rest of the WMAs at the AHCF. Waste management activities in the silos do not include opening, repackaging, or otherwise handling RCRA-regulated waste in a manner that could cause releases of waste or hazardous waste constituents. Therefore, the silos are not contaminated unless there is visual evidence or documentation indicating a release or conditions that could have lead to a release of RCRA-regulated wastes or hazardous waste constituents.

- The container storage area will be decontaminated by sweeping and washing, as described in Section F.5 of the site-wide plan.

7.4.2 Closure Schedule

Section F.7 of the site-wide closure plan provides a timeline for closure activities applicable to all permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure

for the AHCF, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the AHCF.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide closure plan presents general sample collection equipment and techniques applicable to all Units at the SNL/NM facility. This Unit-specific SAP describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the AHCF in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G [10-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples; required analytical constituents; closure criteria; QA and quality control [QC] procedures) regarding RCRA closure of the AHCF.

7.5.1 Sampling and Analysis Scope

This SAP presents procedures for acquisition, analyses, and evaluation of samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor of each of the four WMAs at the AHCF (described in Section 7.1). All of the samples will be analyzed to determine concentrations of a set of indicator parameters selected from the range of hazardous waste constituents in the RCRA-regulated wastes managed in the Unit. These indicator parameters and the applicable criteria for clean closure are identified in Tables 5 and 6, and the rationale for their selection is presented in Section 7.5.3.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA identified in Table 6 will be swept as noted and a sample of the composited floor sweepings from each respective WMA will be collected for analysis.

Two samples of wash water and two samples of used decontamination rinse water will be collected from each WMA identified in Table 6. Used wash water will be contained in temporary berms or other containment devices, sampled, and removed prior to the decontamination rinse step. Used rinse water will be contained similarly, as necessary.

Table 5
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material in the work area and container storage area (representative of material removed from entire floor surface)	Barium Cadmium Chromium Lead	130 ppm <1 ppm 17.3 ppm 21.4 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Barium Cadmium Chromium Lead	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the AHCF due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in floor sweepings and/or pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 6
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Number of Grids	Samples Per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Hot Cell	1	4	Barium Cadmium Chromium Lead	Evaluate with respect to concentrations in pre-wash water
Work Area	1	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Fume Hood (interior)	1	4	Same as above	Evaluate with respect to concentrations in pre-wash water
Container Storage Area	3	4	Same as above	Evaluate with respect to concentrations in sweepings and/or in pre-wash water

[a] One sample from each pair of floor wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the AHCF due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA identified in Table 6 prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 5.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 5 and 6.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will not be required for the sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor), the grid identifier (if applicable), the sample type (e.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-AHCF-WA-FL-RINSE-01 would indicate the filtered rinse water sample taken from the water used to rinse the floor of the work area in the AHCF.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., the recommended maximum holding time for metals analysis is 180 days from sample collection until extraction).

7.5.3 Demonstration of Clean Closure

A subset of hazardous waste toxicity characteristic metals has been selected for use as indicator parameters to demonstrate clean closure at the AHCF, as these constituents are present in many of the wastes commonly stored or treated in the Unit. Other wastes stored or treated in the AHCF typically are regulated as hazardous waste due to ignitability (D001), corrosivity (D002), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters is of limited value for determining the presence of D001, D002, or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor or interior fume hood surfaces even if these constituents had been released in the past. If residual contamination is present on the floor or interior fume hood surfaces of the AHCF WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, samples will be analyzed for the subset of hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B, or an equivalent method.

Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and/or pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and/or pre-wash water, the grid area will be considered clean. If the concentrations of indicator parameters are substantially elevated, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.1 of the site-wide closure plan.

7.5.4 Quality Control

QC for sampling and analysis at the AHCF will be implemented as described in Section F.6 of the site-wide closure plan.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.

7.6 Decontamination and Verification Procedures

Section F.5.2 of the site-wide closure plan presents general decontamination and verification procedures applicable to all Units at the SNL/NM facility. Prior to closure, this Unit-specific plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific plan will be submitted to NMED for approval prior to initiation of closure activities at the AHCF.

8.0 TREATMENT PLAN

Treatment operations for RCRA-regulated wastes treated at the AHCF are described in this section

The following treatment technologies may be used to treat RCRA-regulated wastes at the AHCF:

- Chemical deactivation,
- Stabilization,
- Macroencapsulation, and
- Physical treatment.

Sandia/DOE may use each technology to treat any of the wastes in the General Part A that include the particular technology in the process description. The waste management areas at the AHCF that are used for the treatment of RCRA-regulated wastes are the hot cell, and the work area (including the fume hood), as described below.

Because treatment at the AHCF will be conducted in containers, it is not subject to the miscellaneous unit and environmental performance standards in 20 NMAC 4.1.500/40 CFR 264, Subpart X [10-1-03]. Treatment effectiveness for each waste stream is discussed in Section 8.3.

8.1 Treatment Operations

Waste treatment is performed at the AHCF for one or more of the following reasons:

- To meet land disposal restrictions (LDRs);
- to allow for the safe storage of the waste; and/or
- To meet treatment, storage, or disposal facility (TSDF) requirements.

All of the treatment at the AHCF will be batch treatment performed on single packages of waste (each package is one 55-gallon drum or less, or a single item that may be larger than a drum). Each type of treatment will be performed on batches of 500 pounds of waste or less, with the exception of physical treatment, which may occasionally involve very large, heavy items. Liquid wastes will be treated in batches of 55 gallons or less.

Waste treatment may generate secondary waste streams (treatment residues). RCRA-regulated treatment residues may undergo additional on-site treatment to meet LDRs and/or be sent to an appropriate off-site TSDF.

The waste treatment processes described in this section are effective in addressing hazardous characteristics in RCRA-regulated wastes, including the following:

- Solid items exhibiting the hazardous waste characteristics of ignitability or reactivity may be chemically deactivated to eliminate the characteristic(s).

- Liquid waste exhibiting the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity may be chemically deactivated to remove the characteristic(s).

- Liquid wastes and particulates containing hazardous waste toxicity characteristic metals (excluding elemental mercury and high mercury subcategories) may be stabilized to reduce or eliminate the leaching potential of the hazardous waste constituents.

- Debris and wastes containing hazardous waste toxicity characteristic metals (excluding elemental and high mercury subcategories defined in 20 NMAC 4.1.800/40 CFR 268) may be macroencapsulated to reduce or eliminate the leaching potential of the hazardous waste constituent(s).

- Solid items with hazardous constituents may be physically separated from larger items, and the size of individual pieces may be reduced.

Treated wastes and waste residues resulting from treatment of RCRA-regulated wastes may or may not require further management as hazardous wastes, as discussed in Appendix B, Section B.2.5. Each waste treatment technology or process listed above is described in the following sections.

8.1.1 Chemical Deactivation

Sandia/DOE perform chemical deactivation in containers in the work area (including the fume hood) at the AHCF. The containers vary in size depending on the quantity of waste to be treated, and include laboratory glassware, 5-gallon buckets, and 55-gallon drums.

Chemical deactivation refers to a number of chemical processes that can eliminate the hazardous waste characteristics of ignitability, corrosivity, and/or reactivity. Deactivation can be accomplished by several technologies (e.g., neutralization or chemical oxidation). However, the intent of this section is to identify and describe specific methods or treatment trains which may be used at the AHCF to deactivate ignitable wastes defined in 20 NMAC 4.1.200/40 CFR 261.21(a)(2) and (4) [10-1-03], corrosive and reactive wastes defined in 20 NMAC 4.1.200/ 40 CFR 261.23 [10-1-03]. Deactivation may or may not result in a final waste form, depending on the process, and may be used as the first in a series of treatment steps.

Deactivation processes are conducted under carefully controlled conditions so that RCRA-regulated waste with the characteristic of reactivity is allowed to react in a slow, nonviolent manner. Allowing the reactive potential of the waste to be dissipated in this manner reduces or eliminates the reactive characteristic of the waste. Deactivation of reactive wastes is typically conducted in small batches under laboratory conditions such that process control can be easily maintained.

- Hydrides, deuterides, and tritides are deactivated by slow addition to an ice water bath.

- Deactivation of water reactive metals such as elemental sodium and lithium involves the slow and controlled addition of an appropriate alcohol/water solution. Alcohol/water addition is maintained until the water reactive potential of the waste has been eliminated.

- Deactivation of pyrophoric metal powders and particulates may be achieved by mixing waste in a portland cement matrix.

- Water-soluble oxidizers in particulate form are slowly dissolved in water to deactivate them as the first step in the treatment process. The resulting solution may undergo further treatment (e.g., neutralization and stabilization).

- Water-soluble concentrated liquid oxidizers such as hydrogen peroxide may be diluted with water in a controlled manner to make them safer to handle before deactivation with an appropriate chemical agent such as iron filings.

Chemical deactivation to remove the characteristic of corrosivity is the process of removing excess acidity or alkalinity from an aqueous liquid waste. Other uses may include pH adjustment to facilitate subsequent treatment; such pretreatment through deactivation may be necessary to prevent corrosive damage to equipment, deter undesirable reactions, and preclude the formation of unwanted byproducts.

Reagents added to achieve a desired pH are combined with liquid waste inside a mixing vessel or directly in the waste container. Common deactivating reagents include, but are not limited to, sodium hydroxide for acid wastes; and phosphoric acid for alkaline wastes. The selection of reagents is dependent on the quantity of reagent required, cost, availability, and the potential byproduct(s). These deactivation processes are conducted under carefully controlled conditions in which the reagent is added to the waste slowly and mixed thoroughly. This allows the reaction to proceed in a nonviolent manner and allows the energy to be dissipated effectively. Ice may be used if needed to cool the mixture during the reaction. In the case of reactions that are expected to be strongly exothermic, wastes may be treated in small batches under laboratory conditions (similar to the deactivation of reactive wastes) such that process control can be easily maintained.

8.1.2 Stabilization

Sandia/DOE perform stabilization in containers in the work area, (including the fume hood) at the AHCF. Stabilization is a process of binding hazardous waste metals so that the metals become chemically part of the matrix or are physically bound within the matrix. The primary use of stabilization is to immobilize toxicity characteristic metals but many stabilization agents also eliminate free liquids. Typical waste forms suitable for stabilization include liquids, soils, and particulate-type wastes.

Process equipment for mixing waste and binder materials depends on the type of reagents used and the volume of waste to be treated. In-drum mixing is typically used for large volume waste quantities. Once waste and binder have been thoroughly mixed and placed in a container, the mass is allowed to cure and/or set. Smaller batches may be mixed by hand and allowed to cure in smaller containers (e.g., 5-gallon pails, and tubs and trays of various sizes).

Development of appropriate formulas is waste specific. Stabilization agents for toxic metals may include portland cement, pozzolans, thermoplastics, organic polymers, and clays. However, other waste forms may require proprietary reagents that are available for specific applications. Additional reagents may be added to reduce contaminant leachability, reduce cure and/or set time, and increase strength.

Waste characteristics that are important to the success of the stabilization process for liquids may include volume percent of water, oil, solvents, or other organics; pH; and hazardous waste constituents. Waste characterization data are used to determine whether the waste is amenable to stabilization, any necessary pretreatment requirements, and the appropriate binding agent.

Once stabilization is selected, the binding agent is identified based on chemical compatibility with the waste form and contaminants present. Pretreatment may be required to assure compatibility between the waste and the binding agent (e.g., neutralization of liquid wastes to an acceptable pH range of 5.0 to 11.0). Once the proper binding agent(s) have been identified, bench-scale testing is performed to determine optimum amounts of each agent. In the case of low volume waste streams (e.g., less than approximately 0.26 gallons), bench-scale testing may not be practical and treatment is performed without bench-scale testing using the manufacturer's suggested quantities or by estimating binding agent quantities from previous experience. The stabilization process is performed by combining the predetermined quantities of binding agent(s) with the waste and thoroughly mixing, if appropriate. The resulting mixture is staged to allow an appropriate cure time.

8.1.3 Macroencapsulation

Sandia/DOE perform macroencapsulation in containers in the work area (including the fume hood) and/or the hot cell at the AHCF. Macroencapsulation is generally applicable to debris, whereas stabilization (see Section 8.1.2) is generally applicable to liquids, sludges, and particulate-type wastes. Macroencapsulation is the process of encasing waste within a polymer coating or concrete, or within a jacket of inert inorganic materials. The primary use of macroencapsulation is to immobilize wastes such as debris-type solids containing hazardous waste constituents by surrounding the waste material with a leach-resistant coating.

Sandia/DOE perform macroencapsulation using one of three processes:

- Encasing the waste in concrete, typically within a larger container that serves as a mold for the concrete.

- Coating the waste with polymer agents within a mold. Polymers typically used for macroencapsulation include, but are not limited to, asphalt, polyethylene, thermosetting plastics, and resins that can be polymerized under ambient temperatures in the presence of a catalyst. Equipment used for macroencapsulation may include molds, polymer extrusion equipment, and resin mixing equipment. In-drum macroencapsulation may also be performed with the drum acting as the mold. Temperature control of polymer macroencapsulation processes is critical and carefully maintained to assure that adequate coating occurs.

- Placing the waste inside a container made of an inert resin such as polyethylene. After the wastes and inert void-filler materials are placed in the container, the resin is heated to seal the container and lid (e.g. using a resistance-heated wire system embedded in the container lid). The container may also include an outer metal shell to provide additional structural strength.

8.1.4 Physical Treatment

Sandia/DOE perform physical treatment (volume reduction through separation) in the work area (including the fume hood) and/or the hot cell at the AHCF. The treatment includes:

- Reducing waste volume by using commercially available tools (e.g., hammers, screwdrivers, wrenches, pliers, saws, drills, cutters, etc.) to separate items with hazardous waste constituents from larger items or from each other, including removal of coating and filler materials. In some cases, the RCRA-regulated waste item may undergo further physical treatment or treatment in containers.

- Reducing the size of waste items by using tools (e.g. mallets, cutters, etc.) to crush or cut items into smaller pieces. The pieces may undergo further treatment in containers.

8.2 Preventing Releases to the Atmosphere

Most of the RCRA-regulated wastes treated at the AHCF are inorganic and are not expected to generate emissions during treatment. Unit personnel perform chemical reactions that could generate emissions (deactivation and stabilization) in a controlled manner as described above to further minimizes potential air emissions. Treatment operations that may generate air emissions of gases, vapors, or particulates will be conducted in a controlled manner within the fume hood if possible. Air flow from the fume hood passes through a two-stage high-efficiency particulate air filter train before being released to the environment through an exhaust stack. The filters effectively remove particulates entrained in the air flow.

The filters do not remove organic constituents entrained in the air flow. AHCF personnel employ the practices described in Section 8.2 of the General Part B to prevent releases of organic constituents to the atmosphere during treatment (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC).

8.2.1 Subpart AA

The AHCF treatment operations do not employ processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart AA.

8.2.2 Subpart BB

During treatment, Sandia/DOE do not routinely manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/ 40 CFR 264, Subpart BB [10-1-03]. Equipment used in such service at the AHCF will be used for less than 300 hours per calendar year and is therefore exempt from the requirements of 20 NMAC 4.1.500/40 CFR 264.1052 through 1060 [10-1-03] as noted in 20 NMAC 4.1.500/40 CFR 264.1050(f) [10-1-03]. The equipment location will be noted in the AHCF records. Equipment use will also be noted in the records.

8.2.3 Subpart CC

Unit personnel follow the practices described in Section 8.2 of the General Part B. Unit personnel do not perform any treatment subject to Container Level 3 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]).

Section B.5.3 in Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts BB and CC [10-1-03].

8.3 Treatment Effectiveness (20 NMAC 4.1.900/40 CFR 270.23[d])

As required in 20 NMAC 4.1.900/40 CFR 270.23(d) [10-1-03], Sandia/DOE evaluate treatment effectiveness by appropriate methods for each batch of waste treated at the AHCF. In many cases (e.g. stabilization), Unit personnel treat small samples of a batch of waste using a single agent in various proportions or using various agents to determine which is most effective. That process is then used in treating the rest of the waste. Characterization of the treated waste is described in Appendix B (Section B.2.5.2) of the General Part B.

8.3.1 Chemical Deactivation

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for completeness of chemical reaction for solid items that were treated to remove the characteristic of reactivity.
- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Check whether treated waste is an oxidizer as defined in 40 CFR 173.151.
- Visual check for liquids that were treated to remove the characteristic of reactivity.

- Fingerprint chemical check for the presence of sulfides and cyanides if their presence caused the waste to be reactive.

- Fingerprint check for pH of liquids that were treated to remove the characteristic of corrosivity.

8.3.2 Stabilization

Unit personnel check treatment effectiveness using one or more of the following methods (depending on the goal of the treatment performed):

- Visual check for the presence of free liquids.

- Paint filter test to determine whether free liquids are present if the treated waste is amorphous and may contain some liquids.

- Analysis of one or more samples of the treated waste using the TCLP for hazardous waste toxicity characteristic metals. If the stabilization is intended to meet the treatment standards in 20 NMAC 4.1.800/40 CFR 268.40, the analysis will include underlying hazardous constituents as described in Appendix B.

8.3.3 Macroencapsulation

Unit personnel visually check each macroencapsulated item to verify that it is completely encased in the inert resin or concrete.

8.3.4 Physical Treatment

Unit personnel check treatment effectiveness using one of more of the following methods (depending on the goal of the treatment performed):

- Visual check that item(s) with hazardous waste constituents has(ve) been completely separated from other item(s).

- Visual check that pieces are the desired size.

9.0 REFERENCES

DHHS, see US Department of Health and Human Services

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

National Fire Protection Association (NFPA), 2002, "Standard for the Installation of Sprinkler Systems," NFPA 13, National Fire Protection Association, Quincy, Massachusetts.

National Fire Protection Association (NFPA), 2002, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," NFPA 25, National Fire Protection Association, Quincy, Massachusetts.

NFPA, see National Fire Protection Association

Sandia National Laboratories/New Mexico (SNL/NM), 2004, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 7.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

U.S. Department of Health and Human Services (DHHS), 1994. "NIOSH Pocket Guide to Chemical Hazards", National Institute for Occupational Safety and Health.

This page intentionally left blank.

Sandia National Laboratories/New Mexico
Manzano Storage Bunkers
Part B Permit Application

Module VI

Revision 4.0

November 2004

Prepared by
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185

Prepared for
The U.S. Department of Energy

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF TABLES ..... MSB-iii
LIST OF FIGURES ..... MSB-iv
ACRONYMS AND ABBREVIATIONS ..... MSB-v
1.0 GENERAL UNIT OPERATIONS MSB-2
1.1 Designated Waste Management Areas MSB-2
1.1.1 Type B Bunker (37034) MSB-3
1.1.2 Type C Bunker (37118) MSB-3
1.1.3 Type D Bunkers (37045, 37055, and 37057) MSB-3
1.2 Unit Operations MSB-3
1.2.1 Operation of Containment Systems MSB-4
1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes MSB-4
1.2.3 Preparedness and Prevention MSB-5
1.2.3.1 Required Equipment MSB-5
1.2.3.2 Testing and Maintenance of Equipment MSB-5
1.2.3.3 Access to Communications or Alarm Systems MSB-5
1.2.4 Hazards Prevention MSB-5
1.2.4.1 Preventing Hazards in Unloading MSB-5
1.2.4.2 Preventing Runoff or Flooding MSB-6
1.2.4.3 Preventing Contamination of Water Supplies MSB-6
1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages MSB-6
1.2.4.5 Preventing Undue Exposure MSB-7
1.2.4.6 Preventing Releases to the Atmosphere MSB-7
1.3 Container Storage Practices MSB-8
1.3.1 Container Types and Labeling MSB-8
1.3.2 Container Handling MSB-8
1.3.2.1 Condition of Containers MSB-8
1.3.2.2 Aisle Space and Storage Configuration MSB-8
1.3.2.3 Capability of Waste with containers MSB-8
1.3.2.4 Presence of Liquids in Containers MSB-9
2.0 UNIT DESCRIPTION AND INFORMATION MSB-10
2.1 Security Procedures and Equipment MSB-10
2.1.1 Barriers and Means to Control Entry MSB-10
2.1.2 Warning Signs MSB-11
2.2 Traffic Pattern, Volume, and Controls MSB-11
2.2.1 Traffic Patterns MSB-11
2.2.2 Traffic Volumes MSB-11
2.2.3 Traffic Control Signals MSB-11
2.3 Unit Location Information MSB-12
2.3.1 Seismic Standard MSB-12
2.3.2 Floodplain Standard MSB-12
2.4 Topographic Maps MSB-12
2.5 Groundwater Monitoring MSB-13

TABLE OF CONTENTS (Concluded)

3.0 WASTE ANALYSIS PLAN MSB-14
4.0 INSPECTION PLAN MSB-15
5.0 PERSONNEL TRAINING MSB-18
6.0 CONTINGENCY PLAN MSB-19
7.0 CLOSURE PLAN MSB-22
7.1 Unit Description MSB-22
7.2 Estimate of Maximum Waste in Storage MSB-22
7.3 Closure Conditions MSB-22
7.4 Closure Activities and Schedule MSB-23
7.4.1 Closure Activities MSB-23
7.4.2 Closure Schedule MSB-23
7.5 Sampling and Analysis Plan MSB-23
7.5.1 Sampling and Analysis Scope MSB-23
7.5.2 Sampling Methodology MSB-24
7.5.2.1 Sample Locations MSB-24
7.5.2.2 Sample Collection MSB-24
7.5.2.3 Sampling Equipment MSB-24
7.5.2.4 Sample Equipment Decontamination MSB-26
7.5.2.5 Sample Identification MSB-26
7.5.2.6 Sample Preservation and Holding Time MSB-26
7.5.3 Demonstration of Clean Closure MSB-26
7.5.4 Quality Control MSB-27
7.5.5 Data Management and Reporting MSB-27
7.6 Decontamination and Verification Procedures MSB-27
8.0 TREATMENT PLAN MSB-28
9.0 REFERENCES MSB-29

LIST OF TABLES

Table No.	Title
1	Manzano Storage Bunker Inspection Criteria and Frequency
2	Manzano Storage Bunkers Emergency Equipment and Locations
3	Manzano Storage Bunkers Facility Emergency Coordinator List
4	Manzano Storage Bunkers, Summary of Random Sampling Program
5	Manzano Storage Bunkers, Example Random Sample Locations

LIST OF FIGURES

Figure No.	Title
1	Location Map of the Manzano Storage Bunkers at Sandia National Laboratories/New Mexico
2	Location of the Manzano Storage Bunkers at Manzano Base
3	Manzano Storage Bunkers, Type B, Bunker 37034
4	Manzano Storage Bunkers, Type C, Bunker 37118
5	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, 37057
6	Manzano Storage Bunkers, Traffic Routes, and Controls
7	Topographic Map
8	Manzano Storage Bunkers, Access Control Figures
9	Manzano Storage Bunkers, Drainage Control Features
10	Manzano Storage Bunkers, Evacuation Routes
11	Emergency Response and Access Information in the Vicinity of the Manzano Storage Bunkers
12	Emergency Response and Access Information within the Manzano Storage Bunkers
13	Manzano Storage Bunkers, Type B, Bunker 37034, Random Sampling Grids
14	Manzano Storage Bunkers, Type C, Bunker 37118, Random Sampling Grids
15	Manzano Storage Bunkers, Type D, Bunkers 37045, 37055, 37057, Random Sampling Grids

ACRONYMS AND ABBREVIATIONS

20 NMAC 4.1.*X*00	New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart *X*
40 CFR 2*XX.XX*	Code of Federal Regulations, Title 40, Part 2*XX*, Section 2*XX.XX*
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot/feet
ft^2	square foot/feet
HSWA	Hazardous and Solid Waste Amendments
in.	inch(es)
MSB	Manzano Storage Bunkers
NMED	New Mexico Environment Department
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
Sandia	Sandia Corporation
SNL/NM	Sandia National Laboratories/New Mexico
SWMU	solid waste management unit
TA	Technical Area
Unit	RCRA-regulated waste management unit
WMA	waste management area

This page intentionally left blank.

SANDIA NATIONAL LABORATORIES/NEW MEXICO
MANZANO STORAGE BUNKERS
PART B PERMIT APPLICATION

This Sandia National Laboratories/New Mexico (SNL/NM) Manzano Storage Bunkers (MSB) Part B Permit Application is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subparts V and IX (20 NMAC 4.1.500 and .900), revised October 1, 2003 [10-1-03], requirements specific to Resource Conservation and Recovery Act (RCRA)-regulated waste container storage operations requiring a permit at the MSB. 20 NMAC 4.1.500 and .900 adopt by reference, with limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 264 and 270 (40 CFR 264 and 270).

Sandia Corporation (Sandia) and the U.S. Department of Energy (DOE), as co-operators of the SNL/NM site, have prepared and revised this module to provide Unit-specific details that supplement the information provided in the "Sandia National Laboratories/New Mexico General Part B Permit Renewal Request/Application", hereinafter referred to as the General Part B. Together, information provided in this module, in the General Part B, and in the appendices to the General Part B meet the applicable requirements for the MSB that are specified in 20 NMAC 4.1.500/40 CFR 264 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270 [10-1-03].

Sandia/DOE also prepared a "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application, Rev. 7.0" (SNL/NM, 2004), hereinafter referred to as the General Part A, included as Part 1 of this comprehensive Part B permit request. The General Part A serves as a companion document to the General Part B and Unit-specific Part B modules, including this MSB Part B Permit Application.

In the General Part A, the General Part B, its appendices. and this module, a Unit to be permitted may sometimes be referred to as a "facility." The term "facility," as it appears in this context, is used only to denote a building or Unit name and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03]. However, pursuant to 20 NMAC 4.1.100/40 CFR 260.10 [10-1-03], the SNL/NM site as a whole does meet the regulatory definition of a facility.

The MSB are a set of five units, each with approximately 1600 to 2100 square feet of space. They are located in the Manzano Area on Kirtland Air Force Base (KAFB) and are used for storage of RCRA-regulated wastes in containers. The MSB are owned by KAFB and leased to the DOE. All of the RCRA-regulated wastes listed in the General Part A may be managed at the MSB. Sandia/DOE currently operate the MSB under interim status in accordance with the terms of the most recent Part A submitted to the New Mexico Environment Department (NMED) (November 29, 2004) and the most recent Part B permit request submitted to NMED (November 29, 2004).

1.0 GENERAL UNIT OPERATIONS

This section provides descriptions of the MSB waste management areas (WMAs) and specific waste management practices. The information in this section complements the information provided in Section 1.0 of the General Part B.

Specific information in this section regarding Unit operations includes containment systems; requirements for ignitable, reactive, and incompatible wastes; preparedness and prevention; hazards prevention; and container storage of RCRA-regulated wastes.

The specific information provided and documents referenced in this section, together with the general information provided in Section 1.0 of the General Part B, address the applicable hazardous waste management facility requirements of 20 NMAC 4.1.500/40 CFR 264, Subparts I, AA, BB, and CC [10-1-03], and 20 NMAC 4.1.900/40 CFR 270.14 and 270.15 [10-1-03].

1.1 Designated Waste Management Areas

The location of the MSB at SNL/NM is shown on Figures 1 and 2. The MSB include five Units: Bunkers 37034, 37045, 37055, 37057, and 37118 (Figure 2). There are five designated waste management areas (one in each bunker) as shown in Figures 3, 4, and 5.

In each MSB bunker, containers holding RCRA-regulated liquid wastes are stored on portable spill pallets or pans. These are commercially available units consisting of a tub made of a heavy-duty inert material such as polyethylene or polypropylene with a heavy-duty inert plastic grating cover. They are designed to be resistant and impervious to corrosives and other liquids. The containers of liquids (typically 5- to 30-gallon capacity) are stored on the grating. Any liquids released from the containers drain through the grating into the tub. The pallets come in various sizes and capacities, they are designed for use with 55-gallon drums or other standard containers, and they meet the requirements of 20 NMAC 4.1.900/40 CFR 270.15[a] and [b] [10-1-03] and 20 NMAC 4.1.500/40 CFR 264.175(b)(1-3).

The pallets come in various sizes and capacities; each pallet has sufficient capacity to hold the contents of the largest container of liquid stored on it. Containers are not stacked on each other on the pallets. Because the spill pallets are designed to hold containers of liquids, the weight of the containers does not exceed the load-bearing capacity of the grating or the pallet.

The containers are stored indoors and are protected from precipitation by the bunkers, and by the slope of the concrete paved surface outside the door that directs storm water away from the doorways, meeting the requirements of 20 NMAC 4.1.500/40 CFR 264.175(b)(4).

The MSB are constructed of concrete (walls, roof, and floor) and are covered by earthen materials. The walls and roof of each bunker are rounded. There are three types of bunkers: Type B (37034); Type C (37118); and Type D (37045, 37055, and 37057). The following sections provide descriptions of specific bunker storage structures, locations, and capacities.

1.1.1 Type B Bunker (37034)

Type B bunkers consist of an access tunnel leading to a main chamber that is used for storage of RCRA-regulated wastes. Figure 3 provides a typical floor plan for a Type B bunker. The Type B access tunnel is approximately 20 feet (ft) long, 12 ft wide, and 12.5 ft high. The main chamber is approximately 81 ft long, 26.5 ft wide, and 12.8 ft high. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface above and around each bunker is sloped so water drains away from the bunker. Access to the WMA of each bunker is through two sets of double doors that are 9 ft high and 9 ft wide. One set is at the entrance to the access tunnel, and the other set is at the entrance to the main chamber.

Based on the available floor space (2,100 square feet [ft^2]) in Bunker 37034, it can hold a maximum of 25,080 gallons of RCRA-regulated wastes.

1.1.2 Type C Bunker (37118)

Type C bunkers do not have an access tunnel and consist entirely of a main chamber used for storage of RCRA-regulated wastes. Figure 4 is a typical floor plan of a Type C bunker. The main chamber is approximately 80 ft long, 27 ft wide, and 12.8 ft high. A 6-in. drain tile is located outside the bunker perimeter. Access to the main chamber is through a set of double doors 8 ft wide and 9.5 ft high. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface over and around each bunker is sloped so water drains away from the bunker.

Based on the available floor space (approximately 2,100 ft^2) in Bunker 37118, it can hold a maximum of 25,080 gallons of RCRA-regulated wastes.

1.1.3 Type D Bunkers (37045, 37055, and 37057)

Type D bunkers consist of an access tunnel leading to a main chamber. Only the main chamber is used for storage of RCRA-regulated wastes. Figure 5 is a typical floor plan of a Type D bunker. Type D access tunnels vary in length from 76 feet to 110 feet and are 9 ft wide and 11 to 12 ft high. The main chamber in each bunker is approximately 61 ft long, 26.5 ft wide, and 12.5 ft high. Access to the WMA of each bunker is through two sets of double doors that are 9 ft high and 9 ft wide. One set is at the entrance to the access tunnel, and the other set is at the entrance to the main chamber. Each bunker is covered by at least 2 ft of earthen fill over a 6-in. thick roof of waterproofed concrete. The soil surface over and around each bunker is sloped so water drains away from each bunker.

Based on the available floor space (1,600 ft^2) in each of the Type D bunkers, each bunker can hold a maximum of 18,480 gallons of RCRA-regulated wastes.

1.2 Unit Operations

The MSB WMAs are used to store any of the RCRA-regulated wastes bearing U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers listed in the General Part A.

The MSB are not continuously occupied. All personnel sign in on a log upon entering each bunker and sign out when they leave. Waste handling personnel work in pairs and maintain contact with each other. All personnel are trained to check that everyone has signed out and exited the bunker before turning off the lights and closing and locking the doors.

Information regarding operations requiring a permit at all RCRA-regulated Units at SNL/NM is included addressed in Section 1.1 of the General Part B. Additional Unit-specific information is provided in the following sections.

1.2.1 Operation of Containment Systems (20 NMAC 4.1.500/40 CFR 264.175[b][5]; 20 NMAC 4.1.900/40 CFR 270.14[b][8][ii] and 270.15[a] and [b])

Unit personnel begin taking action to evaluate and remove accumulated liquids in the spill pallets upon discovery. Accumulated liquids are cleaned up as described in Section 1.1.1 of the General Part B.

1.2.2 Requirements for Ignitable, Reactive, and Incompatible Wastes (20 NMAC 4.1.500/40 CFR 264.17, 264.176, and 264.177; 20 NMAC 4.1.900/ 40 CFR 270.14[b][9] and 270.15[c] and [d])

Any of the ignitable or reactive wastes listed in the General Part A may be managed at the MSB. Sources of ignition that may be present at the MSB are those noted in Section 1.1.2.1 of the General Part B: welding activities, open flames, hot surfaces, frictional heat, radiant heat, sparks, and engines. Unit personnel employ the general precautions and practices described in Section 1.1.2 of the General Part B. Additional Unit-specific features, potential ignition and reaction sources, precautions, and practices include:

- Ignitable and reactive wastes are segregated from other wastes within each bunker. The containers are labeled as described in Section 1.2.1 of the General Part B. Unit personnel typically place a portable sign near the wastes, use prominent labels, or use another method to assist in identifying them as ignitable and/or reactive. Water-reactive wastes are not routinely stored in the bunkers. If present, they are segregated from other wastes and their location identified clearly through the use of signs, labels, or some other method.

- Containers of wastes are labeled and segregated according to compatibility criteria in 20 NMAC 4.1.500/40 CFR 264 Appendix V. The liquids in containers that are stored together on a spill pallet must be compatible with each other. The spill pallet provides an independent containment system. Likewise, only compatible solids are stored together on a pallet. The pallets of wastes are segregated into different rows and areas, each row or area containing only compatible wastes. Ignitable and reactive wastes are segregated from other wastes in this manner.

- Containers are not routinely opened during storage at the bunkers, and RCRA-regulated wastes are not repackaged.

1.2.3 Preparedness and Prevention (20 NMAC 4.1.500/40 CFR 264, Subpart C and 20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address required equipment, testing and maintenance of equipment, and access to communications or alarm systems at the MSB.

1.2.3.1 Required Equipment (20 NMAC 4.1.500/40 CFR 264.32)

The MSB are not equipped with automatic fire suppression systems. As noted in Table 2, fire-fighting services are provided by the KAFB fire department tanker trucks. Information on other required equipment located at the MSB is provided in Section 6.0 and Table 2 of this module.

1.2.3.2 Testing and Maintenance of Equipment (20 NMAC 4.1.500/40 CFR 264.33)

Information on equipment testing and maintenance at the MSB is provided in Appendix C of the General Part B and in Section 4.0 of this module.

1.2.3.3 Access to Communications or Alarm Systems (20 NMAC 4.1.500/40 CFR 264.34)

Information about the types and locations of communications or alarm systems at the MSB is provided in Section 1.1.3.3 of the General Part B and in Section 6.0 of this module. Personnel at the Unit typically maintain contact with the emergency coordinator and other personnel at the existing Radioactive and Mixed Waste Management Facility or future Consolidated Waste Management Facility through 2-way radios or cellular phones.

1.2.4 Hazards Prevention (20 NMAC 4.1.900/40 CFR 270.14[b][8])

The following sections address the procedures, equipment, and structures used at the MSB to prevent hazards. Additional information applicable to the MSB and all other Units at SNL/NM is included in Section 1.1.4 of the General Part B.

1.2.4.1 Preventing Hazards in Unloading (20 NMAC 4.1.900/40 CFR 270.14[b][8][i])

MSB personnel employ the practices described in Section 1.1.4.1 of the General Part B to prevent hazards in unloading. Loading and unloading activities take place on the paved areas immediately outside the bunkers. The surface is sloped gently away from the door, the pavement is in good condition in the area, and there is sufficient room for operating vehicles.

Transport vehicles carry absorbent spill pillows/pigs and/or additional absorbent. The spill pillows will contain any spill or release of liquid wastes to the concrete surface immediately adjacent to and in front of the bunker doors and prevent run-off to surrounding areas.

Personnel will add the additional absorbent or pillows to the contained liquid and place the absorbed waste into appropriate containers as described in Section E.5 of the Site Wide Contingency Plan (Appendix E).

Containers are typically strapped together or tied down on a pallet before being moved. Containers are moved with a forklift from the storage areas through the access tunnels to the loading areas at each bunker. Containers may be moved with a drum dolly or hand truck within each bunker.

Waste handling personnel work in pairs at the Unit, and maintain contact with one another. Because the Unit is not routinely occupied, personnel are trained to be particularly aware of current and forecast weather conditions and other operations that could affect waste movement, and to exercise caution in operating equipment such as forklifts.

1.2.4.2 Preventing Runoff or Flooding (20 NMAC 4.1.900/40 CFR 270.14[b][8][ii])

Sheet-flow run-on of surface water from surrounding areas and runoff from the MSB are prevented from entering/leaving the WMAs by the design and construction of the bunkers. The MSB are constructed of concrete and covered by earthen materials. The slope of the earthen materials covering the bunkers prevents run-on of storm water or snow melt. The interior roof and side walls of each bunker are protected by a waterproof membrane. In Type B and Type C bunkers, a 6-ft drain tile is located on the exterior perimeter, so any water that percolates through the earthen fill is drained away from the bunkers. The drive at the front of each bunker is level or sloped slightly away from the bunker doors.

1.2.4.3 Preventing Contamination of Water Supplies (20 NMAC 4.1.900/40 CFR 270.14[b][8][iii])

Sandia/DOE do not anticipate that management of RCRA-regulated wastes at the MSB will affect water supplies, as described in this section and in Section 1.1.4.3 of the General Part B.

1.2.4.4 Mitigating Effects of Equipment Failure or Power Outages (20 NMAC 4.1.900/ 40 CFR 270.14[b][8][iv])

General measures that are available to Unit personnel are described in Section 1.1.4.4 of the General Part B. RCRA-regulated waste handling activities at the MSB that are affected by equipment failures or power outages will be suspended in response to such outages.

Electrical power is not required for the safe operation of the MSB WMAs. Equipment and/or power failures will not result in a loss of containment for RCRA-regulated wastes.

1.2.4.5 Preventing Undue Exposure (20 NMAC 4.1.900/40 CFR 270.14[b][8][v])

MSB personnel employ the practices described in Section 1.1.4.5 of the General Part B to prevent undue exposure.

1.2.4.6 Preventing Releases to the Atmosphere (20 NMAC 4.1.900/40 CFR 270.14[b][8][vi] and 270.27(a)(2); 20 NMAC 4.1.500/40 CFR 264.179 and Subparts AA, BB, and CC)

MSB personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere during storage.

Subpart AA

MSB storage operations do not employ any of the processes subject to the requirements of 20 NMAC 4.1.500/40 CFR 264 Subpart AA.

Subpart BB

During storage activities at the MSB, Sandia/DOE do not manage RCRA-regulated wastes with organic concentrations ≥10 percent by weight in process equipment identified in 20 NMAC 4.1.500/40 CFR 264, Subpart BB [10-1-03].

Subpart CC

MSB personnel employ the practices described in Section 1.1.4.6 of the General Part B to prevent releases to the atmosphere in accordance with Container Level 1 standards (20 NMAC 4.1.500/40 CFR 264.1086[c]) for containers that are subject to the standards. Such containers may be stored in any of the bunker WMAs.

Section B.5.3 of Appendix B to the General Part B also describes procedures to maintain compliance with the air emissions requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart CC [10-1-03].

1.3 Container Storage Practices (20 NMAC 4.1.900/40 CFR 270.15 and 20 NMAC 4.1.500/40 CFR 264 Subpart I)

Container storage practices applicable to the MSB are presented in the following sections.

1.3.1 Container Types and Labeling

MSB personnel use the containers types and labeling practices described in Section 1.2.1 of the General Part B.

1.3.2 Container Handling (20 NMAC 4.1.500/40 CFR 264.173)

MSB personnel employ the container handling practices described in Section 1.2.2 of the General Part B.

1.3.2.1 Condition of Containers (20 NMAC 4.1.500/40 CFR 264.171)

The condition of containers at the MSB is maintained as indicated in Section 1.2.2.1 of the General Part B.

1.3.2.2 Aisle Space and Storage Configuration (20 NMAC 4.1.500/40 CFR 264.35)

MSB personnel employ the aisle space and storage configuration as described in Section 1.2.2.2 of the General Part B. Aisle width is typically 2.5 feet; this is adequate for unobstructed movement of Unit and emergency response personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of Unit operation in an emergency.

Drums and drum-shaped containers that are stacked are stored on pallets, and are not stacked more than two or three pallets high. Smaller containers may be stacked on a single pallet. Box-shaped containers may be stacked two high without pallets. Containers of solids may also be stored directly on the floor. Containers of liquids are stored on spill pallets and are not stacked.

1.3.2.3 Capability of Waste with containers (20 NMAC 4.1.500/40 CFR 264.172)

MSB personnel ensure waste compatibility with containers as indicated in Section 1.2.2.3 of the General Part B.

1.3.2.4 Presence of Liquids in Containers (20 NMAC 4.1.900/40 CFR 270.15[b][1] and 20 NMAC 4.1.500/40 CFR 264.175[c])

MSB personnel verify the absence of free liquids in containers as indicated in Section 1.2.2.4 of the General Part B before storing containers in areas that are not equipped with secondary containment.

2.0 UNIT DESCRIPTION AND INFORMATION

The information provided in this section is submitted to address the applicable requirements of the 20 NMAC 4.1.500 and .900/40 CFR 264 and 270 [10-1-03]. The following subject areas are addressed in this section:

- Unit-specific security procedures and equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4] and 270.14[b][19][viii] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.14 [10-1-03]);
- Unit-specific traffic patterns, volume, and controls (20 NMAC 4.1.900/40 CFR 270.14[b][10] [10-1-03]);
- Unit-specific location information for compliance with the seismic standard and floodplain requirements (20 NMAC 4.1.900/40 CFR 270.14[b][11] [10-1-03], and 20 NMAC 4.1.500/40 CFR 264.18[a] and [b] [10-1-03]);
- Unit-specific topographic map requirements (20 NMAC 4.1.900/40 CFR 270.14[b][19] [10-1-03]); and
- Unit-specific groundwater monitoring and protection information (20 NMAC 4.1.900/ 40 CFR 270.14[c] [10-1-03]; 20 NMAC 4.1.500/40 CFR 264.90[a] [10-1-03]).

An SNL/NM site-wide facility description addressing additional regulatory requirements is provided in Appendix A of the General Part B.

2.1 Security Procedures and Equipment (20 NMAC 4.1.900/40 CFR 270.14[b][4]; 20 NMAC 4.1.500/40 CFR 264.14)

The following sections describe the security provisions provided at SNL/NM to prevent unknowing or unauthorized entry onto the active portions of the MSB.

2.1.1 Barriers and Means to Control Entry (20 NMAC 4.1.500/40 CFR 264.14[b][2][i] and [ii])

The doors of the individual bunkers are locked except when personnel are present. As noted in Appendix A of the General Part B, Sandia security personnel periodically monitor the SNL/NM Units during non-operational hours.

Unit personnel have Sandia-issued badges. Individuals who do not have Sandia-issued badges are escorted. These procedures limit access to the MSB WMAs in accordance with 20 NMAC 4.1.500/40 CFR 264.14(b)(2) [10-1-03].

The MSB are located within the Manzano Base area. The Manzano Base is surrounded by an 8-ft chain-link fence (Figures 1, 2, and 8). Entrance to the Manzano Base area, whether by personnel or vehicles, is through one controlled gate. Manzano Base access control

procedures are designed to assure that only properly authorized persons, vehicles, and property are allowed access to the bunkers.

2.1.2 Warning Signs (20 NMAC 4.1.500/40 CFR 264.14[c])

The entrance to each bunker is posted with "Danger: Unauthorized Personnel Keep Out" (or functionally equivalent) signs. The signs contain the warning in English and Spanish, are legible from a distance of 25 ft, and can be seen from the paved access road approach to each bunker. Additional signs are not necessary because employees and visitors do not approach the bunkers from any other direction.

2.2 Traffic Pattern, Volume, and Controls (20 NMAC 4.1.900/40 CFR 270.14[b][10])

General traffic pattern information, traffic volumes, and traffic control signals for the SNL/NM facility are provided in Appendix A of the General Part B.

2.2.1 Traffic Patterns

The primary traffic routes used to transport RCRA-regulated wastes to the MSB include Wyoming Boulevard, and Pennsylvania Avenue as shown on Figure A-4 in Appendix A of the General Part B. Pennsylvania Avenue crosses Tijeras Arroyo over the Manzano Bridge. The MSB are located approximately 1 mile east of the exit road leading to the entrance of TA-III and TA-V and at the end of Pennsylvania Avenue. Within Manzano Base, waste is transported to each bunker on 2-lane asphalt-paved roads (Figure 6).

2.2.2 Traffic Volumes

Traffic volumes on Wyoming Boulevard, and Eubank Boulevard are generally light to moderate. Traffic volumes on Pennsylvania Avenue are generally light. Vehicle types are generally cars, light- and medium-duty trucks, and vans. Flatbed trucks or trailers also use primary traffic routes to transport waste containers.

Fewer than 10 vehicles typically travel to the MSB per week. These include flatbed trucks and trailers carrying supplies and containers of RCRA-regulated waste to and from the MSB.

2.2.3 Traffic Control Signals

A stop sign is located approximately 50 ft west of the Manzano Base entrance gate. Traffic control signals within Manzano Base include stop signs, yield signs, and posted speed limits. Traffic routes and controls at Manzano Base are shown on Figure 6.

2.3 Unit Location Information (20 NMAC 4.1.900/40 CFR 270.14[b][11])

2.3.1 Seismic Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][i and ii] and 20 NMAC 4.1.500/40 CFR 264.18[a])

The WMAs at the MSB are not located within 3,000 ft of any faults with Holocene displacements (see Section A.4.2 in Appendix A of the General Part B).

2.3.2 Floodplain Standard (20 NMAC 4.1.900/40 CFR 270.14[b][11][iii]; 20 NMAC 4.1.500/40 CFR 264.18[b])

The WMAs at the MSB are not located within the 100-year floodplain boundary (see Section A.4.3 in Appendix A of the General Part B).

2.4 Topographic Maps (20 NMAC 4.1.900/40 CFR 270.14[b][19])

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03]. Due to the large amount of information, it is not provided on a single map. The maps clearly show the map scale, the date of preparation, and a north arrow (20 NMAC 4.1.900/40 CFR 270.14[b][19][i] and [vi] [10-1-03]). The maps and figures used to fulfill these regulatory requirements include the following:

- An SNL/NM-wide 100-year floodplain map is provided as Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][ii] [10-1-03]).
- Surface waters, including intermittent streams, near the MSB are shown on Figure A-2 in Appendix A of the General Part B and Figure 7 of this module (20 NMAC 4.1.900/ 40 CFR 270.14[b][19][iii] [10-1-03]).
- Surrounding land uses are shown on Figures A-2 and A-8 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][iv] [10-1-03]). The area surrounding the MSB is occupied by test facilities.
- Wind roses for SNL/NM are shown on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][v] [10-1-03]).
- Legal boundaries of SNL/NM (including the MSB) are shown on Figure A-2 in Appendix A of the General Part B (20 NMAC 4.1.900/40 CFR 270.14[b][19][vii] [10-1-03]).
- Access control features at the MSB (e.g., fences, gates) are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][viii] [10-1-03]).

- Supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near the MSB are shown on Figure A-2 in Appendix A of the General Part B and Figure 7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][ix] [10-1-03]).

- Locations of Manzano Base and the MSB WMAs, access roads, and loading and unloading areas are shown on Figure 8 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] [10-1-03]). There are no sanitary sewers in the vicinity of the MSB.

- Drainage control features (e.g., run-on/runoff, drainage barriers) are shown on Figure 9 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][x] and [xi] [10-1-03]).

- Locations of Manzano Base and MSB WMAs are shown on Figure7 of this module (20 NMAC 4.1.900/40 CFR 270.14[b][19][xii] [10-1-03]).

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at SNL/NM and in the vicinity of the MSB. As provided for in 20 NMAC 4.1.900/40 CFR 270.14(b)(19) [10-1-03], SNL/NM has submitted the maps to the NMED at these scales and contour intervals due to the size of the MSB, the extent of the SNL/NM facility, and the topographic relief in the area.

2.5 Groundwater Monitoring (20 NMAC 4.1.900/40 CFR 270.14[c] and 20 NMAC 4.1.500/40 CFR 264.90[a])

Groundwater monitoring information is provided in Part 3 of this comprehensive Part B permit request. The MSB is not a regulated unit. There have been no releases of RCRA-regulated waste in the past, nor are the MSB likely to affect groundwater quality during normal operations or during unusual events.

3.0 WASTE ANALYSIS PLAN

In accordance with 40 CFR 270.14[b][2] and 20 NMAC 4.1.500/40 CFR 264.13, “General Waste Analysis” [10-1-03], waste analysis requirements applicable to all Units, including the MSB, are addressed in Appendix B of the General Part B.

4.0 INSPECTION PLAN

20 NMAC 4.1.500/40 CFR 264.15 and 264.33 [10-1-03] and 20 NMAC 4.1.900/40 CFR 270.14(b)(5) [10-1-03] required that WMAs and associated systems be inspected on a regular basis and in accordance with procedures to assure their integrity, maintenance, and safe operation.

Unit personnel perform periodic inspections to identify malfunctions, signs of deterioration, operator errors, and discharges or spills that may be causing or may lead to a release of hazardous waste constituents to the environment or may pose a threat to human health. The inspections are performed on a regular schedule based on the likelihood of equipment or system failure and associated consequences. The inspections include safety and emergency equipment, security devices, and operating and structural equipment related to management of RCRA-regulated wastes to ensure that human health and the environment will be protected.

The general Sandia/DOE inspection plan and schedule that meets these requirements are described in the “Site-Wide Inspection Plan”, provided as Appendix C of the General Part B. Unit personnel conduct inspections in accordance with the site-wide plan.

Specific items and areas that are inspected are listed in Table 1, with the inspection criteria and frequency.

The results of inspections by Unit personnel (including any corrective actions required and taken) are recorded on forms identical or similar to the ones presented in Appendix C of the General Part B. The inspection plan (Appendix C and this section) is maintained at the existing RMWMF/future CWMF. Inspection records for the current calendar year are maintained at each bunker. Inspection records for previous calendar years are maintained at the existing RMWMF/future CWMF or the SNL/NM Records Center.

Table 1
Manzano Storage Bunker Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
SAFETY AND EMERGENCY EQUIPMENT **See Table 2 "Emergency Equipment and Locations" in this module for additional information**		
Portable eye wash	Operational, accessible, in good condition	Monthly
Spill control and cleanup items	Present, quantities per inventory, accessible, in good condition	Monthly
Personal protective equipment	Present, quantities per inventory, and in good condition	Monthly
Smoke alarm	Present	Monthly
Fire extinguisher	Present, charged, accessible, and in good condition	Monthly
OPERATING AND STRUCTURAL EQUIPMENT		
Bunker floor	Clean, no spills or excessive wear	Weekly when wastes are managed. Monthly otherwise.
Bunker walls	Not leaking or spalling, in good condition	Weekly when wastes are managed. Monthly otherwise.
Bunker ceiling	Not leaking or spalling, and in good condition	Weekly when wastes are managed. Monthly otherwise.
Bunker lights	Operational and in good condition	Weekly when wastes are managed. Monthly otherwise.
Loading and unloading areas	Good condition, safe working surface, no spills	Daily when and where wastes are handled. Monthly otherwise.
Waste handling equipment	Good condition, in good repair, operational	Daily when and where wastes are handled. Monthly otherwise.
SECURITY DEVICES		
Warning signs	Present and in good condition	Monthly
Doors	Present, operational, in good condition	Monthly
Locks	Present, operational, in good condition	Monthly
CONTAINERS		
Integrity	Good condition (i.e., no bulging, leaks, corrosion, or deterioration)	Check individual containers as they are handled. Weekly otherwise.
Closed	Correct lid/cover placement (i.e., properly closed and sealed)	Check individual containers as they are handled. Weekly otherwise.
Labeling	Correct information, correct location, legible	Check individual containers as they are handled. Weekly otherwise.

Table 1 (Concluded)
Manzano Storage Bunker Inspection Criteria and Frequency

Inspected Item	Inspection Criteria	Inspection Frequency
CONTAINERS (cont)		
Secondary Containment (e.g., spill pallets for liquid waste)	Adequate volume, free of liquids, good condition (i.e., no cracks, excessive wear)	Check individual containers as they are handled. Weekly otherwise.
Storage Conditions	Waste compatible with container, container located with compatible wastes	Check individual containers as they are handled. Weekly otherwise.
Location	Correct aisle space, correct stacking (2 maximum)	Check individual containers as they are handled. Weekly otherwise.

5.0 PERSONNEL TRAINING

Training requirements for Unit personnel are specified in 20 NMAC 4.1.900, 40 CFR 270.14[b][12], and 20 NMAC 4.1.500/40 CFR 264.16 [10-1-03], "Personnel Training." The Sandia/DOE training program is designed and implemented to prepare personnel to operate and safely maintain those areas used for managing RCRA-regulated waste at the MSB.

All job descriptions identified in Appendix D, Table D-2 of the General Part B are applicable at the MSB. MSB personnel receive training in accordance with the "Site-Wide Personnel Training Plan" provided in Appendix D of the General Part B.

Training records for MSB personnel are maintained at the existing Radioactive and Mixed Waste Management Facility and will be maintained at the future Consolidated Waste Management Facility at SNL/NM.

6.0 CONTINGENCY PLAN

Emergency response requirements for permitted units are specified in 20 NMAC 4.1.500/40 CFR 264, Subpart D [10-1-03], "Contingency Plan and Emergency Procedures," and in 20 NMAC 4.1.900/40 CFR 270.14(b)(7) [10-1-03]. The Sandia/DOE "Site-Wide Contingency Plan" is included as Appendix E of the General Part B. Supplemental MSB-specific information is included in this section, Figures 10-12, and in Tables 2 and 3 of this module. Current copies of the site-wide contingency plan and this supplemental information are maintained at each bunker, at the existing RMWMF/future CWMF, and at the SNL/NM Emergency Operations Center.

The U.S. Department of Energy and Sandia Corporation use the five bunkers of the MSB to store containers of RCRA-regulated waste. The MSB are located approximately 1 mile east of the road leading to the entrance of TA-III and -V at the end of Pennsylvania Avenue. The WMAs at the MSB include: a Type B bunker (37034); a Type C bunker (37118); and three Type D bunkers (37045, 37055, and 37057). Bunkers are constructed of concrete (walls, roof, and floor) and are covered by earthen materials.

RCRA-regulated wastes bearing the U.S. EPA listed in the General Part A Permit may be stored at the MSB WMAs. Waste is segregated based on compatibility groups within each bunker.

Figure 10 presents evacuation routes for the MSB. Figures 11 and 12 present emergency response and access information for the MSB. Table 2 lists the emergency equipment typically available at the MSB and additional spill cleanup equipment available at other SNL/NM Units. Table 3 lists the emergency coordinators for the MSB.

The emergency coordinators are informed of planned work activities at the beginning of each work day; this includes activities at Units that are not routinely staffed (such as the MSB).

Table 2
Manzano Storage Bunkers,
Emergency Equipment and Locations

Category	Description/Capabilities	Location
Spill Control and Decontamination Equipment	Portable Eyewash	By inner door inside each bunker
	Personal protective equipment (chemical-resistant gloves and safety glasses)	By inner door inside each bunker
	Absorbents (sufficient absorbent for 55 gallons of liquid when liquid wastes are present)	By inner door inside each bunker
	Spill cleanup items (mops, brooms, and/or shovels)	In equipment storage at the existing RMWMF/future CWMF
	Recovery drums and containers	In equipment storage at the existing RMWMF/future CWMF
Internal Communication and Alarm System	Voice command Portable 2-way radio	Operating personnel typically carry radios.
	Smoke Alarms	• Smoke detectors and alarms inside each bunker • Strobe light on front outside each bunker
External Communication System	Mobile Telephone or Portable Radio	Taken to bunkers by personnel
Fire Extinguishers	Portable (A-B-C)	By entrance door outside each bunker
Fire Suppression	Water to Extinguish Fires	KAFB tanker truck at the KAFB fire station in the Manzano administrative area

KAFB Kirtland Air Force Base

Table 3
Manzano Storage Bunkers,
Facility Emergency Coordinator List

November 29, 2004

Facility Emergency Coordinator		Office Phone	Home Phone
Primary	Jeff Jarry Sandia National Laboratories P. O. Box 5800 Albuquerque, NM 87185	(505) 284-3080 (office) (505) 561-1138 (pager)	(505) 452-3337
First Alternate	Mike Spoerner Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2813 (office) (505) 540-5296 (pager)	(505) 828-3441
Second Alternate	Phil Zelle Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 844-2486 (office) (505) 540-7437 (pager)	(505) 292-5097
Third Alternate	Mary Ann Krauss Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 845-9997 (office) (505) 540-5228 (pager)	(505) 299-0793
Fourth Alternate	Leroy Duran Sandia National Laboratories P.O. Box 5800 Albuquerque, NM 87185	(505) 284-1488 (office) (505) 530-4105 (pager)	(505) 281-4183

One or more of the listed personnel are routinely available at the existing Radioactive and Mixed Waste Management Facility and will be available at the future Consolidated Waste Management Facility during normal work hours (7:00 am to 5:30 pm, Monday through Thursday) and can be contacted by radio or telephone during those hours.

7.0 CLOSURE PLAN

Applicable closure requirements are specified in 20 NMAC 4.1.900/40 CFR 270.14(b)(13), and 20 NMAC 4.1.500/40 CFR 264, Subparts G and I [10-1-03]. General closure information applicable to all Units at SNL/NM and general sampling and analytical procedures to be used during closure activities are presented in the "Site-Wide Closure Plan" in Appendix F of the General Part B. The site-wide closure plan includes a description of the SNL/NM facility, waste descriptions, closure performance standards, general closure methods, a sampling and analysis plan (SAP), a general closure schedule, procedures for amendment of the plan, closure certification and letter, survey plat, and post-closure requirements. Unit-specific information for closure of the MSB is included in this section.

7.1 Unit Description

Sandia/DOE use the five bunkers of the MSB to store containers of RCRA-regulated waste. The MSB are located approximately one mile east of the road leading to the entrance of TA-III and -V at the end of Pennsylvania Avenue. The WMAs at the MSB include: a Type B bunker (37034); a Type C bunker (37118); and three Type D bunkers (37045, 37055, and 37057). Bunkers are constructed of concrete (walls, roof, and floor) and are covered by earthen materials.

The Type B bunker is approximately 81 feet (ft) long by 26 ft wide, and the Type C bunker is approximately 80 ft long by 27 ft wide (Figure 13). Each of the Type D bunkers is approximately 61 ft long by 26 ft wide (Figure 14).

7.2 Estimate of Maximum Waste in Storage

The maximum volume of RCRA-regulated waste in storage at any time in the MSB is approximately 105,600 gallons of liquids and/or solids. This is the maximum volume of RCRA-regulated waste that could be removed from the WMAs as part of closure activities. The WMAs are located at the bunkers shown in Figure 2. The maximum total waste volume is broken down as follows:

- Type B Bunker (37034): 25,080 gallons
- Type C Bunker (37118): 25,080 gallons
- Type D Bunkers (37045, 37055, and 37057): 55,440 gallons (18,480 each)

7.3 Closure Conditions

In addition to the general assumptions listed in Section F.5 of the site-wide closure plan, partial closure activities specified in this plan assume the following conditions were met during the operational life of the MSB:

- Waste handling activities that involved opening containers of RCRA-regulated waste at the MSB were confined to the interiors of the bunkers. If contamination occurred, it would have been confined to those areas; and

- The interior floors of each WMA were maintained to retain their integrity by following established maintenance and inspection procedures, breaches of protective coatings did not occur, and a small amount of soil will be present on the floors due to normal traffic and operations.

7.4 Closure Activities and Schedule

This closure will be conducted to support attainment of the closure performance standards outlined in Section F.4 of the site-wide closure plan. Section 7.5.3 of this plan discusses the criteria that will be used to verify that clean closure has been achieved.

7.4.1 Closure Activities

The closure approach and general activities described in Section F.5 of the site-wide closure plan will be applied to closure of the WMAs at the MSB. With respect to the individual WMAs, Sandia/DOE will decontaminate the floor of each by sweeping and washing as described in Section F.5 of the site-wide plan in Appendix F.

7.4.2 Closure Schedule

Section F.7 of the site-wide closure plan provides a timeline for closure activities applicable to all permitted Units at the SNL/NM facility. Currently, there is not an estimated date of closure for the bunkers, but a Unit-specific closure schedule will be prepared and submitted to NMED prior to initiation of closure activities at the MSB.

7.5 Sampling and Analysis Plan

Section F.6 of the site-wide closure plan presents general sample collection equipment and techniques applicable to all Units at the SNL/NM facility. This Unit-specific SAP describes the sampling, analysis, and quality assurance (QA) methodologies Sandia/DOE will use to demonstrate clean closure of the MSB in accordance with the requirements of 20 NMAC 4.1.500/40 CFR 264, Subpart G, [10-1-03], as applicable. It addresses specific details (e.g., the type, number, and location of samples; required analytical constituents; closure criteria; QA and quality control [QC] procedures) regarding RCRA closure of the MSB.

7.5.1 Sampling and Analysis Scope

This SAP presents procedures for the acquisition, analyses, and evaluation of samples of floor sweepings (soil), pre-wash (unused) wash water, used wash water, and used rinse water from the floor of each of the five WMAs at the MSB: a Type B bunker (37034); a Type C bunker

(37118); and three Type D bunkers (37045, 37055, and 37057). All of the samples will be analyzed to determine concentrations of a set of indicator parameters selected from the range of hazardous waste constituents in the range of RCRA-regulated wastes managed in the Unit. These indicator parameters and the applicable criteria for clean closure are identified in Tables 4 and 5, and the rationale for their selection is presented in Section 7.5.3.

7.5.2 Sampling Methodology

7.5.2.1 Sample Locations

The floor of each WMA will be swept and a sample of the composited floor sweepings from each WMA will be collected for analysis.

As indicated in Table 5, two samples of used wash water and two samples of used decontamination rinse water will be collected from each floor grid area shown on Figures 13 and 14. Used wash water will be contained in temporary berms or other containment devices, sampled, and removed prior to the decontamination rinse step. Used rinse water will also be contained in temporary berms or other containment devices, as necessary.

7.5.2.2 Sample Collection

One single representative sample will be collected from the composited floor sweepings (e.g., soil) at each WMA prior to the decontamination procedure. Each sample will be analyzed for the indicator parameters identified in Table 4.

One representative sample will be collected from each batch of unused detergent and water solution to be utilized in the decontamination procedure. Two representative grab samples of used wash water and two samples of used decontamination rinse water will be collected from the temporary berms or other containment structures after each wash and rinse cycle. One sample from each pair will be filtered upon collection to remove particulates present in the water. Each sample will be analyzed for the indicator parameters identified in Tables 4 and 5.

7.5.2.3 Sampling Equipment

Samples of floor sweepings (e.g., soil) will be collected with a disposable scoop, trowel, or equivalent sampling device. Wash and rinse water samples will be collected with a disposable liquid sampling device. Samples will be placed in pre-cleaned 500-milliliter or 1-liter wide-mouth glass jars with screw-top lids, or other approved containers that are appropriate for the analysis.

One sample from each pair of used wash water and used decontamination rinse water samples will be filtered using a 0.45-micron filter to remove particulates.

Table 4
Summary of Pre-Wash Sampling Program

Media to be Sampled	Sample Number & Type	Indicator Parameters[a]	Standards for Comparison[b]
Floor sweepings	Single grab from collected material at each WMA (representative of material removed from entire floor surface)	Barium Cadmium Chromium Lead	281 ppm <1 ppm 21.8 ppm 39 ppm
Pre-wash (unused) water	Single grab (one from each batch of detergent/water solution prior to use in decontamination)	Barium Cadmium Chromium Lead	N/A

[a] These metals have been selected as indicator parameters to demonstrate clean closure at the MSB due to their typical presence in the wastes stored at the Unit.

[b] Analytical results for indicator parameters in floor sweepings will be compared to background concentrations in site soils developed by NMED (NMED, 1997). Analytical results for indicator parameters in pre-wash water will be used in evaluating the decontamination wash water and rinse water.

Table 5
Summary of Post-Wash Sampling Program

Area to be Decontaminated	Dimensions of Area to be Decontaminated	Grid Size	Number of Grids	Samples Per Grid[a]	Indicator Parameters[b]	Closure Criteria[c] (milligrams per Liter)
Floor of Bunker 37034	26’ x 81’	26’ x 40.5’	2	4	Barium Cadmium Chromium Lead	Evaluate with respect to concentrations in sweepings and/or in pre-wash water
Floor of Bunker 37118	27’ x 80’	27’ x 40’	2	4	Same as above	Same as above
Floor of Bunker 37045	26’ x 61’	26’ x 30.5’	2	4	Same as above	Same as above
Floor of Bunker 37055	26’ x 61’	26’ x 30.5’	2	4	Same as above	Same as above
Floor of Bunker 37057	26’ x 61’	26’ x 30.5’	2	4	Same as above	Same as above

[a] One sample from each pair of floor wash water and rinse water samples will be filtered when collected to remove particulates.

[b] These metals have been selected as indicator parameters to demonstrate clean closure at the MSB due to their typical presence in the wastes stored at the Unit.

[c] Sandia/DOE will continue the long-standing practice of providing radionuclide data to NMED on a voluntary basis, in accordance with: 1) the joint guidance developed by the National Association of Attorneys General (NAAG), (NAAG, 1998), and 2) the data-sharing provisions of the current Agreement-in-Principle between DOE and the State of New Mexico (DOE, 2000).

7.5.2.4 Sample Equipment Decontamination

Pre-cleaned and prepared sample containers and disposable filtration equipment will be obtained from a commercial supplier or the analytical laboratory selected by Sandia/DOE. Decontamination of other disposable sampling equipment (e.g., scoops, trowels, liquid samplers) will not be required for the sampling procedures used in this closure.

If it is determined, during sampling activities, that reusable sampling equipment will be utilized, the equipment will be decontaminated using the following steps:

- Wash the equipment with a detergent and water solution, scrubbing as needed to remove any deposits;
- Rinse the equipment with tap water until the soapy residue is removed;
- Rinse with deionized or distilled water; and
- Allow to air dry or dry with a lint-free cloth.

7.5.2.5 Sample Identification

Each sample will be assigned an identification number that will uniquely identify the sampling area (e.g., floor), the grid identifier (if applicable), the sample type (e.g., soil, rinse water), and any additional information that may be necessary. As an example, the sample numbered F-37034-A-FL-RINSE-01 would indicate the filtered rinse water sample taken from the water used to rinse the floor of Grid A in Bunker 37034.

7.5.2.6 Sample Preservation and Holding Time

After samples are collected at the site, they will be placed in a cooler with frozen gel packs to maintain a temperature of approximately 4 degrees Celsius. Liquid samples will be preserved with nitric acid to maintain a pH of 2 or less. Analytical holding times will be observed by the laboratory for samples collected under this SAP (e.g., the recommended maximum holding time for metals analysis is 180 days from sample collection until extraction).

7.5.3 Demonstration of Clean Closure

A subset of hazardous waste toxicity characteristic metals has been selected for use as indicator parameters to demonstrate clean closure at the MSB, as these constituents are present in many of the RCRA-regulated wastes commonly stored in the bunkers. Other wastes stored in the MSB typically are regulated as hazardous waste due to ignitability (D001), reactivity (D003), or the presence of trace amounts of volatile organic solvent constituents (F001-F005). Sampling floor sweepings (soil) or decontamination wash and rinse waters is of limited value for determining the presence of D001 or D003 waste residuals. In addition, given their volatility, F001-F005 constituents would not likely be present on the floor surfaces even if these constituents had been released in the past. If residual contamination is present on the

floor surfaces of the MSB WMAs, it is more likely to consist of metal constituents than volatile organic compounds. For these reasons, samples will be analyzed for the subset of hazardous waste toxicity characteristic metals only, using EPA Method SW 6010B, or an equivalent method.

Analytical results from floor sweeping (soil) samples will be compared to the background concentrations that were developed by the NMED for site soils (NMED, 1997) to determine whether the levels in the floor sweepings exceed background and to establish appropriate management requirements for these residuals. Analytical results from decontamination wash and rinse water samples will be compared to the results for the floor sweepings and pre-wash water. If the concentrations of indicator parameters in the rinse water are consistent with the concentrations in the soil and pre-wash water, the grid area will be considered clean. If the concentrations of indicator parameters are substantially elevated, surface contamination is indicated, and the grid area represented by the sample will be decontaminated again in accordance with the procedures in Section F.5.2.1 of the site-wide closure plan.

7.5.4 Quality Control

QC for sampling and analysis at the MSB will be implemented as described in Section F.6 of the site-wide closure plan.

7.5.5 Data Management and Reporting

Data management and reporting will be performed as described in Section F.6 of the site-wide closure plan.

7.6 Decontamination and Verification Procedures

Section F.5.2 of the site-wide closure plan presents general decontamination and verification procedures applicable to all Units at the SNL/NM facility. Prior to closure, this Unit-specific plan will be updated as necessary to incorporate new or improved decontamination practices or technology. Any revisions to this Unit-specific plan will be submitted to NMED for approval prior to initiation of closure activities at the MSB.

8.0 TREATMENT PLAN

Sandia/DOE do not perform treatment of RCRA-regulated wastes requiring a permit at the MSB.

9.0 REFERENCES

DOE, see U.S. Department of Energy

NAAG, see National Association of Attorneys General

National Association of Attorneys General, 1998, "Announcement and Issuance of Guidance: *Sharing of Radionuclide Information with States*", dated September 1998.

Sandia National Laboratories/New Mexico (SNL/NM), 2004, "Sandia National Laboratories/New Mexico General Part A Permit Renewal Request/Application," Revision 7.0, Sandia National Laboratories/New Mexico, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

U.S. Department of Energy (DOE), 2000, "Agreement-in-Principle Between the United States Department of Energy and the State of New Mexico for Environmental Oversight and Monitoring", dated November 29, 2000.

This page intentionally left blank.