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

JUL 2 6 2005

RECEIVED
JUL 2005
NMED Hazardous
Waste Bureau

Mr. John Kieling, Program Manager
Permits Management Program
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Dr. East, Bldg 1
Santa Fe, NM 87505

Dear Mr. Kieling:

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), DOE is submitting the enclosed information to the New Mexico Environment Department (NMED). The enclosures consist of technical corrections and updates to the Comprehensive Part B Permit Request for RCRA-regulated waste storage and treatment operations at Sandia National Laboratories/New Mexico (SNL/NM).

The corrections and updates affect several pages in four sections of the Part B Permit Request: the General Part A, the Waste Analysis Plan, the module for the Thermal Treatment Facility, and the module for the existing Radioactive and Mixed Waste Management Facility/future Consolidated Waste Management Facility.

This submittal includes four attachments. Each is discussed below.

Attachment A: Summary of Corrections and Updates
The corrections and clarifications are summarized for your convenience in reviewing them.

Attachment B: Redline/Strikeout Copies of Revised Pages
The revised pages are included in redline/strikeout format.

Attachment C: Clean Copy of Revised Pages
Please insert these revised pages into your copies of the Part B Permit Request (instructions are included on the cover of Attachment C). Note that this section also includes pages for the Site-Wide Contingency Plan because these pages were previously affected by a printing error.

Attachment D: Topographic Maps
Please insert these revised maps into your copies of the Part B Permit Request. As requested by Mr. Cornelius Amindyas of your staff, DOE and Sandia have revised file dates in the title blocks of these maps and removed the word "draft" from the title blocks of the maps where it was included. The maps themselves have not been revised.

SNL1163

DOE and Sandia are available to provide additional information as needed. If you have any questions regarding this submittal, please contact David Rast of my staff at (505) 845-5349.

Sincerely,

Patty Wagner

Patty Wagner
Manager
Sandia Site Office

Enclosures

cc w/enclosures:
J. Bearzi, NMED-HWB
W. Moats, NMED-HWB
C. Amindyas, NMED-HWB
L. King, EPA Region 6
M. Gardipe, AL, ERD
M. Reynolds, DOE/SSO
C. Voorhees, NMED-OB

cc w/o enclosures:
D. Rast, DOE/SSO
F. A. Figueroa, SNL, MS 0112, 10000
A. J. Blumberg, SNL, MS 0141, 11100
F. A Figueroa, SNL, MS 0342, 6300 (Acting)
J. L. Moya, SNL, MS 1037, 6330
J. J. Thompson, SNL, MS 1151, 6339
A. S. Reiser, SNL, MS 1151, 6339
SNL ES&H and Security Record Center, MS 0651, 9612
SSO Legal File

Revision of Comprehensive Part B Permit Request
EPA ID No. NM5890110518
Technical Corrections and Updates

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.

Francisco A. Figueroa
Vice President, Business Management and Enabling Services,
and Chief Financial Officer
Sandia Corporation
Albuquerque, New Mexico
Co-Operator

7-12-2005
Date signed

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

7-25-05
Date signed

Attachment A

Summary of Corrections and Updates
Comprehensive Part B Permit Request

Sandia National Laboratories
NM5890110518

Attachment A

Summary of Corrections and Updates
Comprehensive Part B Permit Request

Part	Section	Page	Description of Revisions	Reason for Revisions
1	General Part A, Hazardous Waste Permit Information Form, Section 10	16 of 17	Revise estimated annual quantity in column B for D010 (line 409) from 2,000 to 10,000.	Incorporate updated information and maintain consistency with operating permit revisions that DOE/Sandia submitted recently for Hazardous Waste Management Facility (Permit NM5890110581-1).
1	General Part A, Hazardous Waste Permit Information Form, Section 14	17 of 17	Add facility latitude and longitude under "Comments" in Section 14.	Incorporate information requested by NMED in comments on the HWMF operating permit revisions.
2	General Part B, Appendix B, Table B-1	SW-B-4	Add "fabrication" to description of principal waste generating activities (column 2) for laboratory chemical wastes, contaminated used oil, process wastes, and explosive wastes.	Improve accuracy and completeness of description.
2	General Part B, Appendix B, Table B-1	SW-B-4	Add D008 (lead) to list of potential EPA hazardous waste numbers and constituents (columns 4 and 5, respectively) for explosive wastes.	Improve completeness of description. Lead is present in some explosive wastes.
2	General Part B, Appendix B, Table B-1	SW-B-4	Add D001 (ignitability) and D005 (barium) to list of potential EPA hazardous waste numbers and constituents (columns 4 and 5, respectively for batteries.	Improve completeness of description. Some batteries are ignitable and some contain barium.
2	General Part B, Appendix B, Table B-1	SW-B-5	Delete D002 (corrosivity) from list of potential EPA hazardous waste numbers and constituents (columns 4 and 5) for contaminated soil and debris.	Correct an inconsistency. The characteristic of corrosivity applies only to liquids and does not apply to solids such as contaminated soil or debris.
2	General Part B, Appendix B, Table B-1	SW-B-5	Add "Additional constituents may be present on a case-by-case basis." to footnote a.	Improve completeness of footnote. Wastes generated at SNL/NM are highly variable and may or may not contain various constituents.
2	General Part B, Appendix B, Section B.1.3.3	SW-B-6	Revise the description of process wastes to add manufactured items and note that such wastes may be ignitable.	Improve completeness and accuracy of description, and make description consistent with information in Table B-1.
2	General Part B, Appendix B, Section B.1.3.4	SW-B-7	Revise the description of explosive wastes to note that such wastes are also generated from fabrication, testing, and ER activities.	Improve completeness and accuracy of description, and make description consistent with information in Table B-1.
2	General Part B, Appendix B, Section B.1.3.5	SW-B-7	Revise the description of batteries to note that they may contain liquids.	Improve completeness and accuracy of description, and make description consistent with information in Table B-1.

Attachment A (Continued)

Summary of Corrections and Updates

Part	Section	Page	Description of Revisions	Reason for Revisions
2	General Part B, Appendix B, Section B.1.4.1	SW-B-9	Insert additional text regarding the properties of explosives treated at the Thermal Treatment Facility (TTF). This text was previously included in Section B.1.4.2.2.	Correct a technical error. The information is applicable to wastes treated at the TTF and was previously included in the wrong section.
2	General Part B, Appendix B, Section B.1.4.2.1	SW-B-11	Delete explosive wastes from the description of wastes treated through chemical deactivation.	Correct a technical error. Explosives will not be treated in this manner at SNL/NM.
2	General Part B, Appendix B, Section B.1.4.2.2	SW-B-11	Delete part of the text regarding the properties of explosives treated by thermal deactivation at the existing Radioactive and Mixed Waste Management Facility (RMWMF)/future Consolidated Waste Management Facility (CWMF). This text has been moved to Section B.1.4.1.	Correct a technical error. The information is applicable to wastes treated at the TTF and is not applicable to explosive wastes treated at the RMWMF/CWMF. The information was previously included in the wrong section.
2	General Part B, Appendix B, Section B.1.4.2.6	SW-B-12 SW-B-13	Delete text pertaining to "solid items such as laboratory equipment . . . and other laboratory items that were used in experiments or other processes" from a paragraph describing process wastes, and insert the text in a later paragraph describing debris.	Correct a technical error and make the description consistent with information in Sections B.1.3.3. and B.1.3.9. These items are debris, not process wastes.
2	General Part B, Appendix B, Table B-2	SW-B-17	Delete "Determine whether waste meets listing criteria" from the characterization rationale (column 4) given for batteries and elemental lead.	Correct a technical error (neither of these wastes would meet the criteria for listed wastes). Make the rationale consistent with the information in Table B-1 and the descriptions in Sections B.1.3.5 and B.1.3.6.
2	General Part B, Appendix B, Table B-2	SW-B-18	Delete "Determine whether waste meets listing criteria" from the characterization rationale (column 4) given for unknown liquids and solids.	Correct a technical error (unknown wastes would not the criteria for listed wastes). Make the rationale consistent with the information in Table B-1 and the description in Section B.1.3.7.
2	General Part B, Appendix B, Table B-3	SW-B-25	For wastes to be treated through amalgamation: • Delete underlying hazardous constituents (UHCs) from the list of characterization parameters (column 3). • Delete "Identify UHCs expected to be present in characteristic waste" from the rationale (column 4).	Correct a technical error. UHCs are not applicable to wastes treated using a technology specified in Table 1 in Title 20 of the New Mexico Administrative Code, Chapter 4, Part 1, Section 800 (20 NMAC 4.1.800) incorporating Title 40 of the Code of Federal Regulations Part 268 (40 CFR 268.42).

Attachment A (Continued)

Summary of Corrections and Updates

Part	Section	Page	Description of Revisions	Reason for Revisions
2	General Part B, Appendix B, Table B-3	SW-B-25	For wastes to be treated through amalgamation: • Delete sampling and analysis from the characterization method (column 2). • Delete UHCs from the list of characterization parameters (column 3). • Delete "Determine waste compatibility information" and reference to UHCs from the rationale (column 4).	Correct a technical error. UHCs are not applicable to wastes treated using a technology specified in 20 NMAC 4.1.800/40 CFR 268.42 Table 1.
2	General Part B, Appendix B, Section B.2.5.2	SW-B-29	Revise the description of methods used to characterize wastes treated by chemical deactivation at the RMWMF/CWMF: • Note that such wastes can include oxidizers. • Revise the statement regarding determination of whether the treated wastes are reactive or ignitable to clarify that the flash point test applies only to ignitability, and reactivity is determined solely by knowledge of process.	Improve completeness, clarity, and accuracy of the description. Reactivity is not determined through analytical tests.
2	General Part B, Appendix B, Section B.2.5.2	SW-B-30	Revise the description of methods used to characterize reactive wastes treated by thermal deactivation at the RMWMF/CWMF: • Note that such wastes are characterized for the presence of UHCs through process knowledge or analysis. • Characterization for UHCs is not needed if the wastes will be macroencapsulated.	Improve completeness. Reactivity is not determined through analytical tests. UHCs are not applicable to debris wastes treated through macroencapsulation as defined in 20 NMAC 4.1.800/40 CFR 268.45.
2	General Part B, Appendix B, Section B.2.5.2	SW-B-30	Revise the description of methods used to characterize elemental mercury wastes treated by amalgamation at the RMWMF/CWMF to note that amalgamated wastes are not subject to analysis.	Correct a technical error. Analysis and UHCs are not applicable to wastes treated using a technology specified in 20 NMAC 4.1.800/40 CFR 268.42 Table 1. Make the description consistent with the information in Table B-3.

Attachment A (Continued)

Summary of Corrections and Updates

Part	Section	Page	Description of Revisions	Reason for Revisions
2	General Part B, Appendix B, Section B.2.5.2	SW-B-30	Revise the description of methods used to characterize oils and organic liquids that have been treated by stabilization at the RMWMF/CWMF: • Note that ignitable wastes are not treated through stabilization. • Note that treated wastes will be characterized for UHCs only if they will not undergo further treatment on site.	Improve completeness and accuracy of description.
2	General Part B, Appendix B, Section B.2.5.2	SW-B-30	Revise the description of soils and particulates to note that they are deactivated to treat the characteristics of ignitability and reactivity.	Improve completeness and accuracy of description.
2	General Part B, Module II, Section 1.2.2.2	TTF-5, TTF-6	Revise the discussion of maintenance operations to specify in greater detail the conditions under which operating personnel will use the portable propane burner to check for residual untreated explosive material that could cause a hazard to workers.	Incorporate updated information and maintain consistency with operating permit revisions that DOE/Sandia submitted recently for the TTF (Permit NM5890110518-2).
2	General Part B, Module II, Section 1.2.4.5	TTF-8	Revise a reference to operating personnel using the portable propane burner to check for residual untreated explosive material.	Incorporate updated information and maintain consistency with operating permit revisions that DOE/Sandia submitted recently for the TTF. Make the information consistent with Section 1.2.2.2.
2	General Part B, Module II, Section 8.1.2	TTF-34	Revise a reference to operating personnel using the portable propane burner to check for residual untreated explosive material.	Incorporate updated information and maintain consistency with operating permit revisions that DOE/Sandia submitted recently for the TTF. Make the information consistent with Section 1.2.2.2.
2	General Part B, Module III, Section 6.0	CWMF-33	Revise references to Figures 11 and 12, and Tables 3 and 4. The correct references are to Figures 13 through 16, and Tables 6 through 8.	Correct an error in the text.
2	General Part B, Module III, Section 8.1.2	CWMF-67	Revise reference to Figure 17; the correct reference is to Figure 23.	Correct an error in the text.

Attachment A (Continued)

Summary of Corrections and Updates

Part	Section	Page	Description of Revisions	Reason for Revisions
2	General Part B, Module III, Section 8.3.1	CWMF-72	Revise list of methods that personnel use to check the effectiveness of chemical deactivation to include knowledge of the chemical reaction process.	Improve completeness, clarity, and accuracy of the description. Reactivity is not determined through analytical tests, and knowledge of process is applicable in additional situations. Make the description consistent with Section B.2.5.2 of Appendix B to the General Part B.
2	General Part B, Module III, Section 8.3.3	CWMF-72	Revise description of methods used to check the effectiveness of amalgamation.	Improve completeness, clarity, and accuracy of the description. Effectiveness of amalgamation is not determined through analytical tests. Make the description consistent with Section B.2.5.2 of Appendix B to the General Part B.

Attachment B

Sandia National Laboratories
Comprehensive Part B Permit Request
NM5890110518

Technical Corrections and Updates

Redline / Strikeout Format

- **General Part A (Permit Information Form)**
- **General Part B, Appendix B (Waste Analysis Plan)**
- **General Part B, Module II (Thermal Treatment Facility)**
- **General Part B, Module III (Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility**

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	102,000	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)

Facility latitude: 35 degrees, 01 minutes, 45 seconds North

Facility longitude: 106 degrees, 32 minutes, 30 seconds West

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, fabrication, 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, fabrication, 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, fabrication, 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, fabrication, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D003 D008 D011 F003	Ignitability Reactivity Lead Silver Acetone
Batteries	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D005 D006 D007 D008 D009 D011	Ignitability Corrosivity Reactivity Barium 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. Additional constituents may* be present on a case-by-case basis.

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, or manufactured items, 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., ignitability, 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, fabrication, testing, and ER 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 or solid/liquid 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.1.4 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.

Furthermore, the explosive waste thermally treated at the TTF is not:

- 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.

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, or solid items such as laboratory equipment or other laboratory items that were used in experiments or other processes 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:

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-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 of Process[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]

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, and oxidizers 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 to determine whether the treated waste exhibits the hazardous waste characteristics of reactivity or ignitability, and the flash point test, as needed, for ~~to~~ determination ~~e 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 characterized ~~analyzed~~ for the presence of UHCs through process knowledge or analysis if they will not undergo further treatment ~~on site~~. Characterization for the presence of UHCs is not necessary if the wastes will be further treated through macroencapsulation either on site or off site.

- Elemental mercury treated by amalgamation at the existing RMWMF/future CWMF is not subject to further analysis. ~~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 characteristic~~s~~ of ~~ignitability and~~ toxicity that are treated by stabilization at the existing RMWMF/future CWMF and AHCF are characterized ~~for ignitability~~ through process knowledge or ~~. 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 the toxicity characteristic constituents and UHCs present or reasonably expected to be present in the untreated waste 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 deactivation and 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.

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 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

In order to ensure that residual untreated explosive material is not present to cause a hazard to workers, operating personnel check surfaces with a portable propane burner as described below:

- Prior to maintenance or~~and~~ repair activities on or in the burn cage: If such activities ~~that~~ involve hot work or friction (such as welding, ~~or~~ cutting, or grinding), personnel check the burn cage and pad.

- Prior to maintenance or repair ~~other~~ activities on the steel-lined concrete pad: If such activities~~that~~ involve hot work or friction (such as welding, cutting, or grinding),~~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 areas in the vicinity of the work area~~ with a portable propane burner to ensure that residual untreated explosive material is not present to cause a hazard to workers~~.

- Following observation of kickout that occurs during treatment operations: If kickout is observed, personnel check the affected area following the post-treatment inspection as described in Section 8.1.2.

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 as described in Section 1.2.2.2 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.

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 after treatment operations where kickout was observed, Unit personnel ~~may~~ perform an additional review, checking ~~the~~ surfaces of the affected areas ~~burn cage, the pad, and the surrounding area~~ with a portable propane burner (as described in Section 1.2.2.2) 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. Personnel may also perform this additional review following treatment operations where kickout was not observed.

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.

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 14 through and 126, and in Tables 36 through and 84 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.

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 2317.

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.

- Visual check or ignitability test for liquids that were treated to remove the characteristic of ignitability.
- Knowledge of process to determine whether chemical reaction(s) were completed.
- 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

Unit personnel visually check~~A sample of~~ each batch of treated waste to verify that the chemical reaction occurred~~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.

Attachment C

Sandia National Laboratories
Comprehensive Part B Permit Request
NM5890110518

Technical Corrections and Updates

Replacement Pages

- **General Part A (Permit Information Form)**
- **General Part B, Appendix B (Waste Analysis Plan)**
- **General Part B, Appendix E (Site-Wide Contingency Plan)**
- **General Part B, Module II (Thermal Treatment Facility)**
- **General Part B, Module III (Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility)**

Instructions for replacing superseded pages in Comprehensive Part B Permit Request:

- General Part A – Volume I, Part 1. The enclosed page replaces pages 15/16 (both the affected page and the page on the reverse side).
- General Part B, Appendix B – Volume 1, Part 2: The enclosed pages replace pages SW-B-3 through SW-B-14, pages SW-B-17/18, SW-B-25/26, and SW-B-29/30 (both the affected pages and the pages on the reverse side.)
- General Part B, Appendix E – Volume 1, Part 2: The enclosed pages replace pages SW-E-3/4, and pages SW-E-9 through SW-E-12. Note that these pages have not been revised, but the text was improperly formatted due to a previous printing error. The enclosed pages are properly formatted.
- General Part B, Module II – Volume I, Part 2: The enclosed pages replace pages TTF-5 through TTF-10, and pages TTF-33 through TTF-36 (both the affected pages and the pages on the reverse side.)
- General Part B, Module III – Volume I, Part 2: The enclosed pages replace pages CWMF-33/34, pages CWMF 67/68, and pages CWMF 71/72 (both the affected pages and the pages on the reverse side.)

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				
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	10,000	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)

Facility latitude: 35 degrees, 01 minutes, 45 seconds North

Facility longitude: 106 degrees, 32 minutes, 30 seconds West

This page left intentionally blank.

- 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, fabrication, 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, fabrication, 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, fabrication, 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, fabrication, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D003 D008 D011 F003	Ignitability Reactivity Lead Silver Acetone
Batteries	Weapon systems and components design, development, and testing	Acceptable Knowledge[b] supplemented by Sampling and Analysis, as needed	D001 D002 D003 D005 D006 D007 D008 D009 D011	Ignitability Corrosivity Reactivity Barium 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 D003 D004-D043 F001-F005 F039	Ignitability 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 D003 D004-D043 F001-F005 F039	Ignitability 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. Additional constituents may* be present on a case-by-case basis.

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, wastewaters, or manufactured items, 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., ignitability, 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, fabrication, testing, and ER 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 or solid/liquid 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.

Furthermore, the explosive waste thermally treated at the TTF is not:

- 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.

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.

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 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.

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.

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, or solid items such as laboratory equipment or other laboratory items that were used in experiments or other processes 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.

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 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 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 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-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*	• Verify that waste is suitable for treatment by planned process • Determine treatment standards •
Wastes that have been treated through amalgamation	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
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]

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, metal-containing particulates, and oxidizers 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 to determine whether the treated waste exhibits the hazardous waste characteristics of reactivity or ignitability, and the flash point test, as needed, for determination of 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 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 characterized for the presence of UHCs through process knowledge or analysis if they will not undergo further treatment. Characterization for the presence of UHCs is not necessary if the wastes will be further treated through macroencapsulation either on site or off site.

- Elemental mercury treated by amalgamation at the existing RMWMF/future CWMF is not subject to further analysis.

- 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 characteristic of toxicity that are treated by stabilization at the existing RMWMF/future CWMF and AHCF are characterized through process knowledge or sampling and analysis. The treated wastes are analyzed for the presence of the toxicity characteristic constituents and UHCs present or reasonably expected to be present in the untreated waste 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 are treated by deactivation and 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.

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.

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.

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.

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 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

In order to ensure that residual untreated explosive material is not present to cause a hazard to workers, operating personnel check surfaces with a portable propane burner as described below:

- Prior to maintenance or repair activities on or in the burn cage: If such activities involve hot work or friction (such as welding, cutting, or grinding), personnel check the burn cage and pad.

- Prior to maintenance or repair activities on the steel-lined concrete pad: If such activities involve hot work or friction (such as welding, cutting, or grinding),personnel check the burn cage, the pad, and the surrounding areas in the vicinity of the work area.

- Following observation of kickout that occurs during treatment operations: If kickout is observed, personnel check the affected area following the post-treatment inspection as described in Section 8.1.2.

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 check the surfaces of the burn cage, the pad, and the surrounding area with a portable propane burner before maintenance and repair activities as described in Section 1.2.2.2 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

- 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 after treatment operations where kickout was observed, Unit personnel perform an additional review, checking surfaces of the affected areas with a portable propane burner (as described in Section 1.2.2.2) 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. Personnel may also perform this additional review following treatment operations where kickout was not observed.

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.

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 13 through 16, and in Tables 6 through 8 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.

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 23.

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

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.
- Knowledge of process to determine whether chemical reaction(s) were completed.
- 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

Unit personnel visually check each batch of treated waste to verify that the chemical reaction occurred.

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.

Attachment D

Sandia National Laboratories
Comprehensive Part B Permit Request
NM5890110518

Technical Corrections and Updates

Topographic Maps

- **General Part B, Module I, Figure 6 (Hazardous Waste Management Facility)**
- **General Part B, Module II, Figure 6 (Thermal Treatment Facility)**
- **General Part B, Module III, Figure 10 (Radioactive and Mixed Waste Management Facility/Consolidated Waste Management Facility)**
- **General Part B, Module V, Figure 5 (Auxiliary Hot Cell Facility)**
- **General Part B, Module VI, Figure 7 (Manzano Storage Bunkers)**

TO VIEW THE MAP/MAPS ASSOCIATED WITH THIS DOCUMENT PLEASE CALL THE HAZARDOUS WASTE BUREAU AT 505-476-6000 TO MAKE AN APPOINTMENT