Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

DEC 1996
RECEIVED
HAZARDOUS WASTE
PROGRAM

HAND DELIVERED

DEC 23 1996

Mr. Benito J. Garcia, Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street, Bldg. A
P. O. Box 26110
Santa Fe, New Mexico 87505

Dear Mr. Garcia:

SUBJECT: LOS ALAMOS NATIONAL LABORATORY (LANL) SUBMITTAL OF THE PROPOSED CLASS I MODIFICATION TO THE RCRA OPERATING PERMIT NM-890010515-1.

The purpose of this letter is to submit the attached "Proposed Class I Modification to Los Alamos National Laboratory RCRA Operating Permit". This document corrects typographical errors, administrative and informational changes in Los Alamos National Laboratory's (LANL) RCRA Operating Permit. This submittal meets the requirements as prescribed by Module I, Section D.7.a of the operating permit.

If you need further information, please contact me at (505) 665-5042.

Sincerely,

H. M. "Jody" Plum,
Office of Environment and Projects

cc: w/o attachments
R.S. Dinwiddie, NMED
T. Davis, NMED

15547

Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

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Office of Environment and Projects

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R.S. Dinwiddie, NMED
T. Davis, NMED

PROPOSED CLASS I MODIFICATION TO

LOS ALAMOS NATIONA LABORATORY
RCRA OPERATING PERMIT

PREPARED BY:

LOS ALAMOS NATIONAL LABORATORY
HAZARDOUS AND SOLID WASTE GROUP (ESH-19)
LOS ALAMOS, NEW MEXICO

DECEMBER, 1996

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

PROPOSED CLASS 1 MODIFICATIONS TO LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

Prepared by:
Los Alamos national Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico

December 1996

FOREWORD

The following submittal has been prepared to meet the duty to provide information requirements prescribed in Module I, Section D.7.a of this permit. The modifications are presented in tabbed sections by module and attachment.

A tabular summary of the proposed changes appears before each module or attachment. The table identifies the module, page, and section where a proposed change is located, and presents a brief summary of the change. For each proposed change, the tables also include the modification class and class citation as presented in 40 CFR §270.42, Appendix I, *Classification of Permit Modification*. Proposed modifications not covered by Module I, Section D.7.a.1-6 require a class determination by the New Mexico Environment Department (NMED). Such modifications are identified by a "Yes" in the "Class Determination Required" column. The justification for each modification submitted for a class determination appears as a footnote to the summary table.

The text for each modified module and attachment is behind the summary table. Those modules and attachments not proposed for modification are not shown in this submittal. Proposed additions to the permit language are highlighted in the text with a shadowed background. Deletion of text is indicated with a strikeout feature.

Figures for the modules appear in a separate section following the permit modules. Figures for the attachments are included with the respective attachment. Only figures proposed for modification appear in this submittal.

CERTIFICATIONS

Certification of Accuracy

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

Document title:

Proposed Class I Modifications
to Los Alamos National Laboratory
RCRA Operating Permit

Name: _____ Date: 12/18/96
Dennis J. Erickson, Division Director
Environment, Safety, and Health Division
Los Alamos National Laboratory

Name: _____ Date: 12-23-96
G. Thomas Todd, Area Manager
U. S. Department of Energy-
Los Alamos Area Office

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
I	1 of 8	A.	No	Change "42 U.S.C. 9601" to "42 USC 9601" for consistency throughout the permit.	1	A.2
I	1 of 8	C.	No	Change "invalid,the" to "invalid, the".	1	A.2
I	2 of 8	D.2.	No	Change "270 30(b)" to "270.30(b)".	1	A.2
I	2 of 8	D.7.	No	Change "shall-" to "shall".	1	A.2
I	5 of 8	D.15.	No	Change "Director" to "Secretary".	1	A.1
I	6 of 8	H.2.	No	Change "Environmental Improvement Division" to "New Mexico Environment Department".	1	A.1
I	7 of 8	H.3.	No	Change "Enviorment" to "Environment".	1	A.2
I	7 of 8	H.3.c.	No	Change "Figure 1-1 and Table 1-1 and Table 2-1" to "Figure 2 and Table I-1 and Table II-3" for clarity.	1	A.1, A.2
I	7 of 8	H.3.d.	No	Change "Table 1-1" to "Table I-1".	1	A.1
I	8 of 8	Table I-1	No	Move Table I-1 to the last page of Module I.	1	A.2
I	8 of 8	Table I-1	No	Add reference to Table II-3 in the note regarding the on-site definition in permit paragraph I.H.3.c.	1	A.1

MODULE I STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is allowed to incinerate, treat and store on site hazardous waste in accordance with the conditions of this permit. Any incineration, treatment or storage of hazardous waste not authorized in this permit or conducted under interim status, as defined by the Resource Conservation and Recovery Act (RCRA), is prohibited. Compliance with this permit constitutes compliance, for purposes of enforcement, with the New Mexico Hazardous Waste Act (Section 74-4-1 et seq. NMSA 1978) and the New Mexico Hazardous Waste Management Regulations (HWMR-5, as amended 1989), Parts V, VII and IX only for those management practices specifically authorized by this permit. The Permittee is also required to comply with HWMR-5, Parts I, II, III and IV to the extent the requirements of those Parts are applicable. The Permittee must also comply with all applicable self-implementing provisions imposed by the Resource Conservation and Recovery Act statute and/or the HWMR-5, Part VIII. A complete RCRA permit consists of this permit and a US EPA permit issued under the provisions of the Hazardous and Solid Waste Amendments of 1984 (HSWA) which addresses the portion of the RCRA program for which the State is not authorized. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Sections 3008(a), 3008(h), 3013 or 7003 of RCRA; Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 ~~U.S.C.~~ USC 9601 et seq., commonly known as CERCLA); Sections 74-4-1 et seq. NMSA 1978, or any other law governing protection of public health or the environment.

I.B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in HWMR-5, as amended 1989, Part IX, Subpart B, included herein by reference. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee, does not stay the applicability or enforceability of any permit condition. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology as well as changes in applicable regulations and laws.

I.C. SEVERABILITY

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held ~~invalid,the~~ invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DUTIES AND REQUIREMENTS

1. Duty to Comply The Permittee shall comply, in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(a), with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.61. Any permit

noncompliance by any Permittee employee or contractor, other than noncompliance authorized by an emergency permit, constitutes a violation of the New Mexico Hazardous Waste Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

2. Duty to Reapply In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section ~~270.30(b)~~ 270.30(b), if the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit an administratively complete application for a new permit at least 180 calendar days before this permit expires. [HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.10(h)]

3. Permit Expiration Pursuant to HWMR-5 Part IX, 40 CFR 270.50, this permit shall be effective for the fixed term of ten years. As long as the state is the permit-issuing authority, this permit and all conditions herein will remain in effect beyond the permit's expiration date, if the Permittee has submitted a timely, complete application (see HWMR-5, Part IX, 40 CFR 270.10, 270.13 through 270.29) and, through no fault of the Permittee, the Secretary has not issued a new permit, as set forth in HWMR-5, Part IX, 40 CFR 270.51.

4. Need to Halt or Reduce Activity Not a Defense In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(c), it shall not be a defense for the Permittee, in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(d), the Permittee shall take all reasonable steps to minimize or correct any adverse impact on human health or the environment resulting from non-compliance with this permit.

6. Proper Operation and Maintenance In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(e), the Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. Duty to Provide Information In accordance with HWMR-5, as amended 1 989, Part IX, 40 CFR Section 270.30(h), the Permittee ~~shall~~ shall furnish to the Secretary, within a reasonable time, any relevant information which he may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this permit. [HWMR-5, as amended 1989, Part V, 40 CFR Section 264.74(a)]

a. Los Alamos National Laboratory must submit on a semi-annual basis, by January 31, and July 31, of each calendar year, a list of any changes in the following information:

1. Changes to State, County, Department of Energy (DOE), and LANL telephone numbers.

2. Changes in addresses for State, County, DOE, and LANL entities.

3. Changes in administrative nomenclature for position titles, organizations, and physical structures.

4. Changes in names of responsible parties (personnel).

5. Changes in the names of contractors.

6. Typographical errors in this permit.

7. Any modifications not covered by numbers 1 through 6 above must be submitted in writing for a class determination by NMED prior to incorporation in the permit.

8. Inspection and Entry In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(i), the Permittee shall allow the Secretary or any authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter at reasonable times upon the Permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any unclassified records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;

d. Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the New Mexico Hazardous Waste Act, any substances or parameters at any location; and

e. The Secretary recognizes that the Permittee operates in some cases under security restrictions imposed by the Atomic Energy Act (42 USC 2011 et seq.) and the regulations promulgated thereunder, and by other federal laws and regulations. Should conflict arise under this permit section, the Secretary and the Permittee shall cooperate in working with the appropriate Federal agency to obtain access approval. Nothing in this permit section shall be construed to deny access authorized by the Resource Conservation and Recovery Act.

9. Monitoring

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be an accepted and appropriate method such as described in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, 1986, as revised, or an equivalent method. Laboratory analytical methods must be those specified in SW-846, 1986 as revised; Standard Methods for the Examination of Water and Wastewater, Fifteenth edition, 1980 and 1981 Supplement, or current edition; or an equivalent method, as specified in the Waste Analysis Plan, Permit Attachment A.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, the certification required by HWMR-5, as amended 1989, Part V, 40 CFR 264.73(b)(9), and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, record, certification, or application. These periods may be extended by request of the Secretary at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility. The Permittee shall maintain records from all ground-water monitoring wells and associated ground-water surface elevations for the active life of the facility. [HWMR-5, as amended 1989, Part V, 40 CFR 264.74(b) and 270.30(j)(2)]

c. Pursuant to HWMR-5, Part IX, 40 CFR 270.30(j)(3), records of monitoring information shall specify:

(i) The dates, exact place, and times of sampling or measurements;

(ii) The individuals who performed the sampling or measurements;

(iii) The dates analyses were performed;

(iv) The individuals who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

10. Notice of Planned Physical Facility Changes The Permittee shall give notice to the Secretary, as soon as possible, of any planned physical alterations or additions to the permitted facility which may impact any procedure or system of treatment, storage or control, or any related appurtenances, installed or used by the Permittee to achieve compliance with this permit. Physical alterations or additions shall include all hazardous waste activities and associated underground tanks. Construction of new units may not begin until a permit or permit modification has been issued.

11. Certification of Construction or Modification The Permittee may not commence incineration, treatment or storage of waste at the modified unit until:

    a. The Permittee has submitted to the Secretary, by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer, stating that the unit has been constructed or modified in compliance with the permit; and

    b. (i) The Secretary or his designee has inspected the modified or newly constructed unit and finds it is in compliance with the conditions of the permit; or

       (ii) The Secretary, or his designee, has either waived the inspection or has not, within 15 calendar days, notified the Permittee of his intent to inspect.

12. Anticipated Noncompliance The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

13. Transfer of Permit This permit may be transferred to a new owner or operator pursuant to HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.40. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of HWMR-5, as amended 1989, Parts III, V and IX; and HSWA.

14. Compliance Schedules Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 calendar days following each schedule date.

15. Other Information Whenever the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Secretary, the Permittee shall verbally notify the ~~Director~~ Secretary of such fact on the next work day and submit, within thirty calendar days, written correction of such facts or information. The term "Permit Application" includes any information submitted on solid waste management units.

I.E. SIGNATORY REQUIREMENTS

All reports or other information requested by the Secretary shall be signed and certified as required by HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.11.

I.F. CONFIDENTIAL INFORMATION

The Permittee may claim confidential, in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.12 any information, required to be submitted by this permit.

I.G. DOCUMENTS TO BE MAINTAINED AT FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent registered professional engineer, the following documents and amendments, revisions and modifications to these documents:

1. This permit and its attachments;

2. Waste Analysis Plan, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.13(b) and this permit;

3. Personnel training documents and records required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.16(a) and this permit;

4. Contingency Plan, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.53(a) and this permit;

5. Closure Plans required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.112(a) and this permit;

6. Operating record required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.73 and this permit; and

7. Inspection schedules required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.15 and this permit.

I.H. PERMIT CONSTRUCTION

1. Citing Whenever paragraphs of this permit or of the Hazardous Waste Management Regulations are cited, such cite includes all subordinate 40 CFR sections of the cited paragraph. When subordinate 40 CFR sections are cited, such cite includes all 40 CFR subsections of the cited subparagraph. All such cites shall be considered an inclusion by reference in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30.

2. Gender Whenever the pronoun "he" is used in reference to the Secretary of the ~~Environmental Improvement Division~~ New Mexico Environment Department or the Permittee, it is to be read as "she," in any instance where the object of the reference is female.

3. Definitions For purposes of this Permit, terms used herein shall have the same meaning as those in HWMR-5, Parts I, V, VIII, and IX, unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. "Regional Administrator" means the Regional Administrator of EPA Region VI, or his designee or authorized representative.

"Secretary" means the Secretary of the New Mexico ~~Enviorment~~ Environment Department, or his designee or authorized representative.

a. References to "Wastes" in this permit mean "Hazardous Wastes" as regulated under RCRA unless specifically designated otherwise at the time of use.

b. The term "Knowledge of Process" means a written description of the waste, certified as true and correct by an individual familiar with the process that generated the waste. Such description shall specify the waste constituents and estimate their concentration or quantity.

c. The term "On-site" as used in permit paragraph II.B.2. means facilities under the operational control of the Permittee and located within the external perimeter of the Permittee's property. This includes Technical Areas 0, 2, 3, 6, 8, 9, 11, 14, 15, 16, 18, 21, 22, 26, 33, 35, 36, 37, 39, 40, 41, 43, 46, 48, 49, 50, 51, 52, 53, 54, 55, 58, and 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 74. See permit Figure ~~1-1~~ 2 and Table ~~1-1~~ I-1 and Table ~~2-1~~ II-3.

d. Technical Area Zero (TA-0), includes only the detached sites listed in Table ~~1-1~~ I-1.

e. The term "Analysis" includes physical analysis, chemical analysis and knowledge of process determinations.

f. The term "Permittee" as used in this permit applies jointly and severably to the Owner, U. S. Department of Energy, and to the Operator, the University of California Regents, doing business as the Los Alamos National Laboratory.

TABLE I-1
TECHNICAL AREA ZERO GENERATION SITES

DESIGNATION	DESCRIPTION	ANTICIPATED WASTES
0-480	Pajarito School Engineering offices	D001, D002
0-1197	Mesa School Training offices/classrooms	Any training materials
0-1237	Pueblo Complex Environmental laboratory	Any sample or analysis reagents

NOTE: ~~No other sites are included in the on-site definition in permit paragraph I.H.3.c.~~ Except for those sites listed in Table II-3, no other sites are included in the on-site definition in permit paragraph I.H.3.c.

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
II	1 of 15	B.2.	No	Change "Module II Table 1" and "Module II Table 2-1" to "Table II-3".	1	A.2
II	2 of 15	E.1.	No	Change "logsheets" to "log sheets".	1	A.2
II	3 of 15	F.	No	Change "...shall follow Permit Attachment C. Permit Attachment C shall be updated...." to "...shall follow Permit Attachment C, which shall be updated...."	1	A.2
II	4 of 15	K.	No	Change "RECORDKEEPING" to "RECORD KEEPING"	1	A.2
II	8 of 15	M.	Yes[1]	Change "Hazardous wastes in quantities per vehicle in excess of 110 gallons shall not be transported by the Permittee to, from, or within the facility over public roads between the hours of 7:00 AM to 8:30 AM, 11:30 AM to 1:30 PM or 4:00 PM to 5:45 PM on normal duty days." to "The Permittee shall not transport bulk liquid hazardous wastes in quantities per container in excess of 110 gallons over public roads between the hours of 7:00 AM to 8:30 AM, 12:15 PM to 1:30 PM or 4:00 PM to 5:45 PM on normal duty days."	1	A.1
II	10 of 15	Table II-2	No	Change "If any metal's total concentration exceeds that metal's standard for Extraction Procedure Toxicity, a determination of the Extraction Procedure Toxicity concentration for that metal will be performed." to "If any metal's total concentration exceeds that metal's standard for Toxicity Characteristic Leachate Procedure (TCLP) toxicity, a determination of the TCLP toxicity concentration for that metal will be performed."	1	B.1.a
II	11 of 15	Table II-3	No	Change "Module II Table 2-1" to "Table II-3".	1	A.1

II	11 of 15	Table II-3	No	Change "Nationa" to "National" in the table title.	1	A.2

[1] Text was modified to more accurately reflect the results of traffic pattern studies conducted for LANL.

MODULE II GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF THE FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release to air, soil, or surface water of hazardous waste constituents which could threaten human health or the environment.

II.B. REQUIRED NOTICE

1. Foreign Wastes This permit does not allow the Permittee to accept wastes from a foreign source. If the Permittee is to receive hazardous waste from a foreign source, he shall apply for and receive a permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.41 or 270.42, if appropriate, prior to accepting such waste.

2. Off-Site Wastes This permit does not allow the Permittee to accept wastes from an off-site source. "Off-site source" refers to wastes generated by sources other than the Permittee or its contractor(s) operating on-site. For the purposes of this permit, wastes generated by the Permittee at Technical Area 57, the Fenton Hill site, and waste generated through investigation of Potential Release Sites (PRS) and/or Solid Waste Management Units (SWMU) listed in ~~Module II Table 1~~ Table II-3 (at the end of Module II); or the waste generated through the restoration of the PRS/SWMU sites listed in ~~Module II Table 2-1~~ Table II-3 may be accepted for storage or treatment if all such waste is properly manifested in accordance with permit paragraph II.J. below. If the Permittee is to receive hazardous waste from an off-site source, other than those off-site sources listed in ~~Module II Table 1~~ Table II-3, he shall apply for and receive a permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.42, if appropriate, prior to accepting such waste.

II.C. WASTE ANALYSIS

1. Waste Analysis Plan The Permittee shall follow the procedures described in Permit Attachment A.

2. Quality Assurance The Permittee shall verify its waste analysis as part of a written quality assurance program. The quality assurance program shall be in accordance with current accepted practices such as specified in Test Methods for Evaluating Solid Waste:Physical/Chemical Methods SW-846, 1986, as revised, or equivalent methods approved by the Secretary; and at a minimum ensure that the Permittee maintains proper functional instruments, uses approved sampling and analytical methods, verifies the validity of sampling and analytical procedures, and performs correct calculations. The Permittee will notify any contract laboratory of the requirements of this section and permit.

3. Waste Segregation The Permittee shall keep available at each place where waste storage for more than ninety days occurs, a copy of EPA-600/2-80-076, A Method of Determining the Compatibility of Hazardous Waste.

4. Annual Verification The Permittee shall annually, by the anniversary date of each quarterly report, verify the accuracy and currency of the waste stream determination made in Permit Attachment I.

II.D. SECURITY

The Permittee shall comply with the security provisions of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.14.

II.E. INSPECTION REQUIREMENTS

1. Inspection Plan The Permittee shall follow Permit Attachment B and the inspection requirements in Modules III through VII. The Permittee shall remedy any deterioration or malfunction of equipment or structure discovered by an inspection as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.15(c). Inspection ~~logsheets~~ ~~log sheets~~ may be revised by the Permittee and submitted to the Secretary for inclusion in this permit by permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.42.

2. Facility Release Inspection

   a. The Permittee shall take surface water samples and analyze for metals, volatile and both acid- and base-neutral semivolatile organic hazardous waste constituents in accordance with Table II-2 annually at the sample locations in Table II-1. See Figure 9.

   b. The sampling and analysis shall be done using EPA-approved procedures as published in the latest issue of SW-846.

   c. Analysis of Variance (ANOVA) statistical procedures as promulgated in 53 FR 39720 (October 11, 1988) shall be used to compare data between up-gradient and down-gradient stations.

   d. Records of this inspection shall be kept in accordance with permit paragraph II.K.1.a. below. All analytical results will be recorded and reported. Reports shall be on the form provided in Figure 10.

   e. Reports of releases detected by this inspection shall be made in accordance with permit paragraph II.K.2.c. below.

   f. In the event water samples cannot be obtained at one or more sites, the attempt to obtain samples will be documented in the facility record and the Secretary notified in writing within 30 days of each unsuccessful attempt.

II.F. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.16. This training program shall follow ~~Permit Attachment C. Permit Attachment C.~~ Permit Attachment C, which shall be updated by the Permittee whenever necessary so as to remain current and accurate. A dated copy of the revised training program will be submitted to the Secretary for the permit files and permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.42 prior to its implementation. The Permittee shall maintain training documents and records, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.16(d) and (e).

II.G. REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.17.

II.H. PREPAREDNESS AND PREVENTION

1. Required Equipment At a minimum, the Permittee shall equip the facility with the equipment set forth in Permit Attachments B. and D.

2. Testing and Maintenance of Equipment The Permittee shall test and maintain the equipment specified in permit paragraph II.H.1. above annually or more often if necessary to assure its proper operation in time of emergency.

3. Access to Communications or Alarm System The Permittee shall maintain access to the communications or alarm system(s) as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.34.

4. Required Aisle Space The Permittee shall maintain aisle space as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.35. The minimum aisle shall be twenty four inches. All containers in storage shall be accessible for inspection.

II.I. CONTINGENCY PLAN

1. Implementation of Plan The Permittee shall immediately carry out the provisions of Permit Attachment D. whenever there is an unplanned fire, explosion, or unpermitted release of hazardous waste or hazardous constituents which threatens or could threaten human health or the environment.

2. Amendment of the Plan The Permittee shall review, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.54., and immediately amend if necessary, the Contingency Plan.

3. Copies of the Plan The Permittee shall comply with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.53. A dated copy of any amended Contingency Plan will be submitted to the Secretary for the permit files and permit modification in

accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.42 prior to its implementation.

4. Emergency Coordinator The Permittee shall comply with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.55 concerning the emergency coordinator.

II.J. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of HWMR-5, as amended 1989, Part V, 40 CFR Sections 264.71 and 264.72 for any hazardous wastes received from or shipped off-site by the Permittee for treatment, storage or disposal.

II.K. ~~RECORDKEEPING~~ RECORD KEEPING AND REPORTING

1. Facility Operating Record The Facility Operating Record maintained pursuant to HWMR-5, as amended 1989, Part V, 40 CFR Section 264.73 shall be maintained in such manner that any information required to be in the record shall be readily available to an inspector. Readily available means that, upon request by an inspector, the Permittee can provide the requested information within 24 hours or before the end of the inspection, whichever is less; or upon a schedule designated by the inspector.

   a. In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(j), the Permittee shall maintain at the facility until the end of the last closure period, a written record of waste, effluent, water and decontamination wash-water analyses. The following information shall be recorded:

      (i) The dates, exact place, and times of sampling or measurements;

      (ii) The individual who performed the sampling or measurements;

      (iii) The dates analyses were performed;

      (iv) The individuals or off-site laboratory who performed the analyses;

      (v) The analytical techniques or methods used; and

      (vi) The results of such analyses. The results shall include range, mean, standard deviation and detection limits as applicable to facilitate data analysis.

   b. The Permittee shall maintain pursuant to HWMR-5, as amended 1989, Part V, 40 CFR Section 264.73(b) at the facility until the end of the last closure period, a written record of waste disposal activities. Current EPA approved nomenclature and codes shall be used where appropriate. The following information shall be recorded:

      (i) Waste Source;

(ii) Waste Description;

(iii) Waste Quantity;

(iv) Current Storage Location; and

(v) Disposal. Properly completed hazardous waste manifests will suffice for wastes shipped off-site.

c. The Permittee shall maintain at the facility a written record of Contingency Plan implementation reports. The record shall contain at least the information required in permit paragraph II K.2.b. below. These records shall be kept until the end of the last closure period.

d. The Permittee shall keep at the facility a written record of all inspections conducted in accordance with Permit Attachment B. and permit paragraph II.E. above. These records shall be maintained for a minimum period of three years from the date of the inspection. Records of inspections leading to corrective action shall be retained for three years after the corrective action taken as a result of the inspection.

e. The Permittee shall keep at the facility training documents and records as required by HWMR-5, as amended 1989, Part V, 40 CFR Sections 264.16(d) and 264.1 6(e), and Permit Attachment C. Records of training shall be kept on all current employees and for three years after an employee leaves the facility owner's or operator's employ.

f. The Permittee shall maintain at the facility a copy of all biennial reports submitted in accordance with permit paragraph II.K.2. below. These copies shall be kept until the end of the last closure period.

g. The Permittee shall keep sufficient monitoring records and documentation to demonstrate compliance with this permit. Records unique to one activity may be kept in the vicinity of that activity, subject to the availability requirement in permit paragraph II.K.1. above.

h. In accordance with HWMR-5, as amended 1989, part V, 40 CFR Section 264.74(b), the retention period for all records required by this permit is extended automatically during the course of any unresolved enforcement action regarding the facility, or as directed by the Secretary.

2. <u>Reports</u>

a. The Permittee shall comply with the Biennial Report requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.75.

b. In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(l)(6), the Permittee shall report to the Secretary any noncompliance with the permit which

may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:

(i) Information concerning the release of any hazardous waste which may endanger public or private drinking water supplies.

(ii) Information concerning the release or discharge of any hazardous waste, or of a fire or explosion at the facility, which could threaten the environment or human health. The description of the occurrence and its cause shall include:

(a) Name, address, and telephone number of the owner or operator;

(b) Name, address, and telephone number of the facility;

(c) Date, time, and type of incident;

(d) Name and quantity of materials involved;

(e) The extent of injuries, if any;

(f) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

(g) Estimated quantity and disposition of recovered material that resulted from the incident.

The 24-hour report shall be made by calling (505) 827-4358 during normal duty hours or (505) 827-9329, the 24-hour emergency line.

c. The Permittee shall provide to the Secretary within five (5) working days of the time the Permittee becomes aware of the circumstances, a written report on the event(s) reported orally in permit paragraph II.K.2.b. above. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance, including exact dates and times; whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee need not comply with the five-day written notice requirement if the Secretary waives the requirement and the Permittee submits a written report within fifteen (15) calendar days

of the time the Permittee becomes aware of the circumstances. The written report shall be submitted by certified mail to:

Secretary
New Mexico Environment Department
1190 St. Francis Drive, P.O.Box 26110
Harold Runnels Building
Santa Fe, NM 87503

d. In accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.30(l)(10), the Permittee shall report all other instances of noncompliance, not otherwise required to be reported above, in the annual Environmental Surveillance Report. The reports shall contain the information listed in permit paragraph II.K.2.b. above.

II.L. CLOSURE

The provisions of this permit section apply to individual units for partial closure of the facility, as well as total closure of the entire facility. Closure of one unit may or may not affect the remaining units. The impact of such sequential or partial closure may depend on the sequence and circumstances in existence at the time of closure. The Secretary may direct or the Permittee may request appropriate revisions to the closure plan at that time.

1. Performance Standard The Permittee shall close the facility as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.111 and in accordance with each closure plan, Permit Attachment E.

2. Amendment of Closure Plans The Permittee shall amend each closure plan in accordance with HWMR-5 as amended 1989, Part V, 40 CFR Section 264.112(c) whenever necessary.

3. Notification of Closure The Permittee shall notify the Secretary at least 60 days prior to the date he expects to begin closure under any Permit Attachment E. closure plan.

4. Time Allowed For Closure After receiving the final volume of hazardous waste, the Permittee shall treat or remove from site all hazardous waste in accordance with the schedule specified in the closure plan. After receiving the final volume of hazardous waste, the Permittee shall complete closure activities in accordance with the schedule specified in the closure plan.

5. Disposal or Decontamination of Equipment The Permittee shall properly dispose of or decontaminate all facility equipment, structures, and soils, as required by the closure plan.

6. Certification of Closure The Permittee shall certify that the facility has been closed in accordance with the specifications in the closure plan.

II.M. MOVEMENT RESTRICTION

The Permittee shall not transport bulk liquid hazardous ~~Hazardous~~ wastes in quantities per ~~vehicle~~ container in excess of 110 gallons ~~shall not be transported by the Permittee to, from, or within the facility~~ over public roads between the hours of 7:00 AM to 8:30 AM, ~~11:30 AM~~ 12:15 PM to 1:30 PM or 4:00 PM to 5:45 PM on normal duty days. Off-site transportation under U.S. Department of Transportation regulations by EPA-registered transporters is not subject to this restriction. On-site transportation of waste generated as a result of an emergency cleanup in accordance with Permit Attachment D are not subject to this restriction.

II.N. Spills

The Permittee shall take corrective action, as required by Section 74-4-4.2B NMSA 1978, (as amended 1989), for all releases of hazardous wastes or constituents from any solid waste management unit at his facility. Corrective action may include, but shall not be limited to, the following: decontamination and/or removal of all releases, spills and leaks; immediate cleanup of release or spillage of hazardous wastes, or constituent residue or listed chemicals which become wastes; prevention of surface-water or ground-water contamination which could result from a release or spill; and, cleanup of any surface-water or ground-water contamination which results from a release or spill.

TABLE II-1

ENVIRONMENTAL MONITORING LOCATIONS

STATION	N-S Coordinate (LANL Grid)	E-W Coordinate (LANL Grid)	Map No.
Los Alamos Reservoir	N105	W090	7
Frijoles	S280	E180	9
Canada del Buey	N010	E150	46
Water Canyon at Beta	S090	E090	48
Acid Weir	N125	E070	49
Pueblo - 2	N120	E155	51
Pueblo - 3	N085	E315	53
DPS - 1	N090	E160	57
SCS - 2	N060	E140	66
Pajarito Stream	S180	E140	35
Ancho Stream	S295	E340	36
Frijoles Stream	S365	E235	37
Pajarito Canyon (PCO-3)	S098	E293	104
LAO-4.5	N065	E270	64
MCO-3	N040	E110	69
MCO-8	N030	E190	74
Basalt Spring	N065	E395	56

TABLE II-2

SAMPLING PARAMETERS

TOTAL METALS	ORGANICS	OTHER
Arsenic	Halogenated volatile organics	Cyanide
Barium	Nonhalogenated volatile organics	pH
Cadmium	Acid-extractable semivolatile	
Chromium	organics Base-neutral extractable	
Lead	semivolatile organics Phenols	
Mercury		
Selenium		
Silver		
Nickel		
Beryllium		
Copper		
Zinc		
Iron		

All methods are as published in US EPA SW-846, 3rd Edition or later.

If any metal's total concentration exceeds that metal's standard for ~~Extraction Procedure Toxicity~~ Toxicity Characteristic Leachate Procedure (TCLP) toxicity, a determination of the ~~Extraction Procedure Toxicity~~ TCLP toxicity concentration for that metal will be performed. Both data will be recorded and reported.

~~MODULE II TABLE 2-1~~
TABLE II-3

List of Off-Site Potential Release Site (PRS) and/or Off-Site Solid Waste Management Units (SWMU) that may have Investigative Derived Waste (IDW) or Remediation Waste (RW) brought on to Los Alamos ~~Nationa~~ National Laboratory.

PRS/SWMU Number	Technical Area	Operational Unit	Unit Type
00-003	0	1071	Container Storage
00-005	0	1071	Landfill
00-011(a)	0	1071	Mortar Impact Area
00-011(c)	0	1071	Mortar Impact Area
00-011(d)	0	1071	Mortar Impact Area
00-011(e)	0	1071	Mortar Impact Area
00-012	0	1071	Underground Storage Tank
00-016	0	1071	Firing Range
00-017	0	1071	Waste Lines
00-018(a)	0	1071	Pueblo Waste Water Treatment Plant
00-019	0	1071	Waste Water Treatment Plant
00-028(a)	0	1071	Effluent Discharge
00-028(b)	0	1071	Effluent Discharge
00-030(a)	0	1071	Septic System
00-030(b)	0	1071	Septic System (6th St.)
00-030(g)	0	1071	Septic System
00-030(l)	0	1071	Septic System
00-030(m)	0	1071	Septic System
00-033	0	1071	Warehouse
00-039	0	1071	Underground Storage Tank

Table II-3
(Continued)

PRS/SWMU Number	Technical Area	Operational Unit	Unit Type
01-001(a)	01	1078	Septic System
01-001(b)	01	1078	Septic System
01-001(c)	01	1078	Septic System
01-001(d)	01	1078	Septic System
01-001(e)	01	1078	Septic System
01-001(f)	01	1078	Septic System
01-001(g)	01	1078	Septic System
01-001(h)	01	1078	Septic System
01-001(i)	01	1078	Septic System
01-001(j)	01	1078	Septic System
01-001(k)	01	1078	Septic System
01-001(l)	01	1078	Septic System
01-001(m)	01	1078	Septic System
01-001(n)	01	1078	Septic Tank #276
01-001(o)	01	1078	Ind. or Sm Waste Water Treatment
01-001(s)	01	1078	Septic System
01-001(t)	01	1078	Septic System
01-001(u)	01	1078	Septic System
01-002	45	1079	Outfall TA-01
01-003(a)	01	1078	Landfill
01-003(d)	01	1078	Surface Disposal Site
01-003(e)	01	1078	Surface Disposal Site
01-006(a)	01	1078	Drain, Liner and Outfall

Table II-3
(Continued)

PRS/SWMU Number	Technical Area	Operational Unit	Unit Type
01-006(b)	01	1078	Drain, Liner and Outfall
01-006(c)	01	1078	Drain, Liner and Outfall
01-006(d)	01	1078	Drain, Liner and Outfall
01-006(h)	01	1078	Drain, Liner and Outfall
01-006(n)	01	1078	Drain, Liner and Outfall
01-006(o)	01	1078	Drain, Liner and Outfall
01-007(a)	01	1078	Soil Contamination Area
01-007(b)	01	1078	Soil Contamination Area
01-007(c)	01	1078	Soil Contamination Area
01-007(d)	01	1078	Soil Contamination Area
01-007(e)	01	1078	Soil Contamination Area
01-007(j)	01	1078	Soil Contamination Area
01-007(l)	01	1078	Soil Contamination Area
10-001(a)	10	1079	Firing Site
10-001(b)	10	1079	Firing Site
10-001(c)	10	1079	Firing Site
10-001(d)	10	1079	Firing Site
10-002(a)	10	1079	Disposal Pit
10-002(b)	10	1079	Disposal Pit
10-003(c)	10	1079	Disposal Pit
10-003(d)	10	1079	Disposal Pit
10-003(e)	10	1079	Disposal Pit
10-003(f)	10	1079	Disposal Pit
10-003(g)	10	1079	Manholes

Table II-3
(Continued)

PRS/SWMU Number	Technical Area	Operational Unit	Unit Type
10-003(h)	10	1079	Manholes
10-003(i)	10	1079	Septic Tank
10-003(j)	10	1079	Tank
10-003(k)	10	1079	Tank
10-003(l)	10	1079	Tank
10-003(m)	10	1079	Waste Line
10-003(n)	10	1079	Leach Field
10-003(o)	10	1079	Leach Field
10-004(a)	10	1079	Septic System
10-004(b)	10	1079	Septic System
10-005	10	1079	Surface Disposal Area
10-007	10	1079	Landfill
19-001	19	1071	Septic System
19-002	19	1071	Septic System
19-003	19	1071	Septic System
31-001	31	1079	Septic System
32-001	32	079	Incinerator
32-002(a)	32	1079	Septic System
32-002(b)	32	1079	Septic System
45-001	45	1079	Waste Water Treatment Facility
45-002	45	1079	Vehicle Decontamination Area
45-003	45	1079	Waste Line
45-004	45	1079	Sanitary Sewer Outfall
73-001(a)	73	1071	Landfill

Table II-3
(Continued)

PRS/SWMU Number	Technical Area	Operational Unit	Unit Type
73-001(b)	73	1071	Surface Disposal Area
73-001(c)	73	1071	Landfill
73-001(d)	73	1071	Landfill
73-002	73	1071	Incinerator and Surface Disposal Area
73-004(a)	73	1071	Septic System
73-004(b)	73	1071	Septic System
73-004(c)	73	1071	Septic System
73-005	73	1071	Septic System
73-006	73	1071	Industrial or Sanitary Waste Water Treatment\Facility

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
III	1 of 5	A.1.d.	No	Add a comma after "restraint".	1	A.2
III	1 of 5	A.1.e.	No	Change "fenceline" to "fence line".	1	A.2
III	1 of 5	A.2.a.	No	Delete due to closure of the unit. Renumber items b to d.	1	A.1
III	2 of 5	A.2.d.	No	Delete "located as shown in Figure III-2" because this figure does not exist.	1	A.1
III	2 of 5	C.1.a.	No	Change "Labpacked" to "Lab-packed".	1	A.2
III	3 of 5	C.2.	Yes[1]	Changes reflect recent updates to DOT requirements for authorizing, reusing, and constructing packages, and also correct typographical errors (if, insure).		A.1, A.2
III	3 of 5	C.3.a.	No	Delete due to closure of the unit. Renumber items b to f.	1	A.1

[1] DOT has eliminated specifications for packagings and has adopted performance-oriented packagings. Further, DOT has adopted standards for reusing containers without reconditioning. This modification incorporates these changes in DOT requirements.

MODULE III STORAGE IN CONTAINERS

III.A. DESIGNATED STORAGE UNITS

1. Technical Area 54, Area L The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   a. Containers containing free liquids may be stored on the concrete containment structure, Facility Number 54-32.

   b. Containers containing free liquids may be stored in the packaging building, Facility Number 54-31.

   c. Containers not containing free liquids may be stored, on pallets or otherwise elevated four inches, in a single layer in cleared areas within the fenced portion of Area L, subject to the limitations of HWMR-5, as amended 1989, Part V, 40 CFR Sections 264.175(c) and 264.175(d). Such containers shall not be stored within five feet of the perimeter fence, nor five feet of any structure, nor five feet of the paved or unpaved roadway. Disposal unit covers designed to serve as storage areas are not subject to this exclusion. See Figure 6.

   d. Gas cylinders will be stored in cylinder racks, or on specially constructed pallets that provide support and restraint, under a self-supporting canopy located in cleared areas within the fenced portion of Area L, within the restrictions of permit paragraph II.G. above.

   e. The ~~fenceline~~ fence line around Area L as shown in permit Figure 6 shall not be altered without prior notice to the Secretary and permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.41 or 270.42 as appropriate.

   f. Containers containing free liquids may be stored in the modular storage buildings, Model 22 or equivalent, Facility Numbers 54-68 and 54-69, 54-70 for container storage located as shown in Figure 6.

2. Technical Area 50 The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   ~~a. Containers may be stored within the curbed bay of the Batch Waste Treatment Unit in Building 50-1.~~

   ~~b~~a. Containers containing free liquids may be stored on the concrete containment structures, Facility Numbers 50-139 and 50-140, located as shown in Figure 4.

~~c~~b. Building 50-37. Containers may be stored within storage room 117 of the Controlled Air incinerator as shown in Figure 4.

~~d~~c. Containers containing free liquids may be stored in the modular storage buildings, 0Model 22 or equivalent, Facility Numbers 50-114, 50-137 and 50-138. ~~located as shown in Figure III 2.~~

III.B. AUTHORIZED WASTES

1. Identification Only hazardous wastes identified in Permit Attachment G. with the process code "S01" in column D.1. "Processes" shall be stored.

2. Quantities The cumulative quantity of individual hazardous wastes in storage at any one time at the facility shall not exceed the quantity indicated in Permit Attachment G. Column B. "Estimated Annual Quantity of Waste".

3. Land Ban The Permittee must also comply with the following regarding storage of its wastes in containers which are prohibited from land disposal. These restrictions are imposed on any waste as it becomes prohibited from land disposal. (HWMR-5, as amended 1989, Part VIII, 40 CFR Section 268.50)

   a. A storage period of one year is permitted. A storage period beyond one year is permitted provided there is proof that such storage is solely for the purpose of accumulation of such quantities as are necessary to facilitate proper recovery, treatment or disposal.

   b. Each container must be clearly marked as to its contents and the date each period of accumulation begins.

   c. Hazardous wastes meeting the treatment standards in HWMR-5, Part VIII, 40 CFR Sections 268.41, 268.42, 268.43 are not subject to the storage prohibition. Hazardous wastes meeting the treatment standards specified under the variance in HWMR-5, Part VIII, 40 CFR Section 268.44 are not subject to the storage prohibition.

III.C. CONTAINERS

1. Capacity

   a. ~~Labpacked~~ Lab-packed wastes shall be stored in containers not to exceed 55-gallon nominal capacity.

   b. Bulk liquids may be stored in drums of a nominal capacity of 55-gallons or less.

   c. Solidified hazardous wastes not containing free liquids may be stored in containers meeting U.S. Department of Transportation (DOT) requirements for transportation.

d. Compressed gases may be stored in any sized cylinder. Small cylinders may be packed in drums or crates complying with DOT shipping regulations.

e. Polyethylene containers of 220-gallon or 330-gallon capacity may be used in place of 55-gallon drums as long as secondary containment capacity criteria of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.175(b)(3) are not exceeded.

2. Type Containers must be of a type specified in the DOT hazardous materials regulations, 49 CFR parts 171 to 179, ~~those regulations~~ which specify ~~a particular~~ authorized containers for the waste. As applicable, the containers shall be either: (1) previously unused or ~~certified reconditioned DOT shipping containers~~ reused according to DOT requirements; (2) the original shipping containers in which the material was first marketed; or (3) any other suitable container which satisfies the requirements of permit paragraph III.C. ~~i~~If the hazardous wastes are to be received and stored in their original shipping containers, the Permittee must ~~insure~~ ensure that the requirements of permit paragraph III.C. are satisfied. Polyethylene bulk containers shall meet or exceed DOT ~~specification number E9052~~ requirements. Compressed gas cylinders not meeting DOT requirements shall be segregated in a safe area.

3. Quantity The following quantities include all stored liquid materials, whether regulated or not. Solid materials which do not displace containment capacity may be collocated without affecting these volumes. Solid materials which displace containment volume shall be included in calculating the stored volume as if they were liquids. The Permittee shall keep current accurate records of the quantity of waste in storage at each location below to ensure that these capacities are not exceeded.

~~a. No more than 220 gallons of liquid shall be stored at Technical Area 50, Building 50-1, BWTU curbed bay.~~

~~b~~a. No more than 440 gallons of liquid shall be stored at Technical Area 54, Area L, Building Number 54-31.

~~c~~b. No more than 17,220 gallons of liquid shall be stored at each concrete containment structure: facility Numbers 54-32, 50-139 or 50-140.

~~d~~c. No more than 3600 containers of 55-gallon capacity or less, or the equivalent volume of 26,470 cubic feet, 980 cubic yards or 749 cubic meters, shall be used to store solidified wastes at Technical Area 54, Area L.

~~e~~d. No more than 3,630 gallons of liquid shall be stored in Building 50-37, Room 117.

~~f~~e. No more than 1,650 gallons of waste shall be stored in each modular storage unit.

4. Condition

   a. If a container holding hazardous waste is not in good condition (e.g. severe rusting, structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

   b. The Permittee may use overpack containers of more than 55-gallon capacity to manage defective waste storage containers. Each overpacked container shall be recorded in the facility record.

5. Compatibility of Waste with Containers

   a. The Permittee shall assure, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.172, that the ability of the container to contain the waste is not impaired. When necessary, this shall include procedures for determining whether the hazardous waste is no longer compatible with the shipping container if it is to be stored in its original container (e.g. determination of container adequacy for chemicals that have a finite shelf life or may change in composition upon aging).

   b. The Permittee shall not place into the polyethylene containers described in permit paragraph III.C.1.e. above, any material for which the manufacturer does not rate the container suitability as "Good" or "Excellent" in the current compatibility technical bulletin issued by the manufacturer. A copy of the current bulletin shall be available at any location where the polyethylene container(s) is (are) filled or stored with contained wastes for more than thirty days.

6. Management The Permittee shall manage containers as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.173 and Permit Attachment F.

III.D. CONTAINMENT

The Permittee shall construct and maintain the containment systems for each storage unit in permit paragraphs III.A.1. and III.A.2. above in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.175.

III.E. IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility property line.

III.F. INCOMPATIBLE WASTES

The Permittee shall manage incompatible wastes or incompatible wastes and materials in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.177.

III.G. CLOSURE

The Permittee shall comply with the Closure Plan, Permit Attachment E. and permit paragraph II.L. above, for closure of any permitted storage area.

III.H. INSPECTION

1. Inspection Plan The Permittee shall inspect the storage areas in accordance with Permit Attachment B.

2. Spill Kits The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall be verified.

3. Warning Signs The legibility and condition of warning signs shall be included in the weekly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

    a. Signs shall be at the entrances to the hazardous waste units. Collocated units may be included within one signed area.

    b. Signs shall say "Danger, Unauthorized Personnel Keep Out" and "Hazardous Waste Storage Area".

    c. Signs shall be in both English and Spanish.

    d. Signs on approachable perimeter fences shall be spaced no more than 50 feet apart.

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Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
IV	1 of 3	B.5.b.	No	Change "container" to "tank".	1	A.1
IV	2 of 3	B.5.c.	No	Add a comma after "268.41"; change "prohibitation" to "prohibition".	1	A.2
IV	3 of 3	H.1.b.	No	Change "264.197(b)" to "264.197(a)".	1	A.2

MODULE IV TREATMENT IN TANKS

IV.A. DESIGNATED TREATMENT UNITS

The Permittee may treat hazardous wastes only in the tanks described in this module. No other treatment of hazardous wastes, EPA code T01, is permitted anywhere on the facility. Treatment of wastes subject to the exclusions of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.1(g) shall be documented in accordance with Permit Attachment I. A record or listing of all facility treatment units shall be kept by the Permittee. Their regulatory status and the reasons for claiming an exclusion under HWMR-5, as amended 1989, Part V, 40 CFR Section 264.1(g) shall be recorded. Laboratory staff neutralizing characteristic wastes in quantities of less than one liter need not be recorded if the resultant discharge is to a wastewater system subject to other regulation.

1. Technical Area 54 Area L Wastes may be treated in the two open-top steel tanks located in Area L.

IV.B. AUTHORIZED WASTES

1. Identification Only wastes identified in Permit Attachment G. with the process code "T01," in Column D.1. "Processes" shall be treated, subject to the limitations in permit paragraph IV.B.4. below.

2. Quantities The quantity of waste awaiting treatment shall not exceed the quantity indicated in Permit Attachment G. Column B. "Estimated Annual Quantity of Waste".

3. Additions to the List of Treated Wastes The Permittee shall apply for a permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Sections 270.41 or 270.42 before treating wastes not identified in this permit module.

4. Special Limitation The limitations in Permit Attachment G, Column D.2. shall apply to choice of treatment unit.

5. Land Ban The Permittee must also comply with the following regarding storage of its wastes in tanks which are prohibited from land disposal. These restrictions are imposed on any waste as it becomes prohibited from land disposal. (HWMR-5, as amended 1989, Part VIII, 40 CFR Section 268.50)

   a. A storage period of one year is permitted. A storage period beyond one year is permitted provided there is proof that such storage is solely for the purpose of accumulation of such quantities as are necessary to facilitate proper recovery, treatment or disposal.

   b. Each ~~container~~ tank must be clearly marked as to its contents and the date each period of accumulation begins.

c. Hazardous wastes meeting the treatment standards in HWMR-5, as amended 1989, Part VIII, 40 CFR Sections 268.41, 268.42, 268.43 are not subject to the storage prohibition. Hazardous wastes meeting the treatment standards specified under the variance in HWMR-5, Part VIII, 40 CFR Section 268.44 are not subject to the storage ~~prohibitation~~ prohibition.

IV.C. DESIGN OF TANKS

1. Technical Area 54, Area L Treatment Tanks The tanks shall be nine feet in diameter and three feet six inches high. They shall be constructed of ten gauge carbon steel and shall be coated inside and out with Carboline Phenoline (@) film or equivalent. The tanks shall be on a containment slab constructed with six inch retaining curbs as in Figure 7.

IV.D. OPERATING REQUIREMENTS

1. Technical Area 54, Area L

   a. The tanks shall maintain a minimum of six inches of freeboard at all times. The tanks shall not be left unattended when filling or addition of any material is in process.

   b. Wastes in the tanks will be sampled before and after treatment and analyzed in accordance with Permit Attachment A.

   c. Tanks containing hazardous wastes will be covered whenever significant precipitation is imminent or falling. Significant precipitation is one-half inch water equivalent.

   d. Incompatible wastes shall not be treated in the tanks.

IV.E. INSPECTIONS

The Permittee shall inspect the treatment tanks in accordance with Permit Attachment B. and the requirements below.

1. Technical Area 54, Area L

   a. The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall also be verified.

   b. In accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.193(c)(4), accumulated liquids discovered in secondary containment structures shall be removed within 24 hours of discovery. In the event inclement weather prevents such removal, the circumstances shall be documented in the facility record and the removal effected not later than the next duty day after the weather allows.

c. Cracks and/or gaps in secondary containment structures discovered during an inspection will be repaired within seven calendar days of discovery. Cracks determined to be minor and not adversely affecting containment integrity, shall be logged and delay of repairs justified. Repair of minor cracks may be deferred until regularly scheduled maintenance.

2. Warning Signs The legibility and condition of warning signs shall be included in the weekly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

a. Signs shall be at all entrances to the hazardous waste units. Collocated units may be included within one signed area.

b. Signs on approachable perimeter fences shall be spaced no more than 50 feet apart.

c. Signs shall say "Danger, Unauthorized Personnel Keep Out" and "Hazardous Waste Storage Area".

d. Signs shall be in English and Spanish.

IV.F. RESPONSE TO LEAKS OR SPILLS

The Permittee shall follow the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.196 in response to a leak or spill.

IV.G. CERTIFICATION OF REPAIRS

All major repairs to any tank or associated plumbing shall be certified in accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.196(f) prior to being placed back in service.

IV.H. CLOSURE

The Permittee shall close the tanks in accordance with Permit Attachment E, permit paragraph II.L. above and this permit module.

1. Technical Area 54 Area L

a. At closure, all hazardous waste residues shall be removed from the tanks and the containment structure in accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.197(a).

b. Any component not decontaminated shall be disposed of as hazardous waste in accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.197~~(b)~~ (a).

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Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
V	2 of 9	C.1.	No	Change "A.4.1.2" to "A.4".	1	A.1
V	3 of 9	D.1.c.	No	Change "trichloromethane" to "trichloroethane".	1	A.2
V	3 of 9	C.1.d.	No	Change "Tetrachloroethane" to "Tetrachloromethane".	1	A.2
V	3 of 9	E.7.	No	Change "airflowrate" to "air flow rate".	1	A.2
V	5 of 9	F.9.a.	No	Change "shall!" to "shall".	1	A.2
V	6 of 9	F.11.b.(1).	No	Change "Manual, Chapter 1, Health and Safety" to "Environment, Safety, and Health Manual, Chapter 1".	1	A.1
V	7 of 9	H.1.2.	No	Change "manufacturers," to "manufacturer's".	1	A.2
V	7 of 9	I.	No	Change "RECORDKEEPING" to "RECORD KEEPING".	1	A.2

MODULE V CONTROLLED AIR INCINERATOR OPERATION

V.A. GENERAL CONDITIONS

1. Authorized Unit The unit is the modified Environmental Control Products model ECP 500-T Controlled Air Incinerator (CAI) located in Technical Area 50, Building 37 and configured as shown in Figure 8.

2. Destruction and Removal Efficiency The incinerator and associated effluent control system shall be operated to achieve a minimum destruction and removal efficiency (DRE) of 99.99% calculated in accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.343(a). A minimum DRE of 99.9999% shall be achieved whenever waste F027 is incinerated.

3. Regulatory Compliance In accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.343(d), compliance with the operating conditions of this permit will be regarded as compliance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.343. Evidence that compliance with these conditions is insufficient to ensure compliance with the performance standards of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.343, shall be information justifying permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.41 or 270.42 or permit revocation in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.43.

V.B. WASTE IDENTIFICATION

1. Authorized Wastes

   a. Only wastes identified in Permit Attachment G. with the process code "T03" in column D.1. "Processes" shall be incinerated at the CAI.

   b. Only wastes generated at the Permittee's facility shall be incinerated. See permit paragraph II.B.2. above.

2. Prohibited Wastes

   a. The following listed hazardous wastes shall not be incinerated unless chemical analysis shows them to not exceed one hundred micrograms per gram concentration in the waste:

      (i) U121 Trichloromonofluoromethane (Freon 11)

      (ii) U225 Tribromomethane

      (iii) U075 Dichlorodifluoromethane (Freon 12)

b. Any future listed hazardous waste with a heat of combustion less than 0.24 kilocalories per gram shall not be incinerated unless chemical analysis shows it to not exceed one hundred micrograms per gram concentration in the waste.

c. Wastes generated off-site shall not be incinerated. See permit paragraph II.B.2.above.

3. Physical Form Wastes in gaseous, liquid, solid, or semi-solid sludge forms may be incinerated.

V.C. WASTE ANALYSIS

1. Waste Analysis Plan The Permittee shall follow Permit Attachment A. Each knowledge of process determination shall be documented and justified. Each batch of waste shall be analyzed in accordance with Permit Attachment ~~A.4.1.2~~ A.4.

2. Analysis of Waste Blends Waste blends of previously analyzed materials shall not require reanalysis unless:

   a. Physical properties are expected to vary more than five percent (5%) from those of the original feedstock; and

   b. Those physical properties cannot be calculated based on previous analytical knowledge of the individual components or blends forming the new mixture.

   c. Five percent (5%) of the waste blends not analyzed on an annual basis shall be subject to analysis as a quality control check of the calculated values. Agreement between analytical data and calculated values of ten percent (10%), based on the analytical data, shall be acceptable. Disagreement shall be investigated for cause and documented in the record, along with appropriate corrective actions. The next waste blend created after a disagreement shall be analyzed to confirm corrective action.

   d. Waste blends may not be incinerated prior to receipt of analytical data.

3. Determination of Radionuclides Content Each batch of waste treated under this permit shall be surveyed to determine its radionuclide content. Knowledge of Process shall not be used for this survey.

4. Metals Standards Each batch of liquid waste treated under this permit shall be analyzed to determine its metal content. For each metal, the waste feed rate, in grams/sec, should not exceed that dictated by the emissions screening limits for noncarcinogenic and carcinogenic metals for facilities in complex terrain determined by using the terrain adjusted effective stack height according to the EPA "Guidance on Metals and Hydrogen Chloride Controls for Hazardous Waste incinerators, Vol. IV, March, 1989"' or the succeeding guidance documents. Knowledge of Process analyses may be used on no more than 80% by volume of the wastes treated.

V.D. PRINCIPAL ORGANIC HAZARDOUS CONSTITUENTS

1. Routine Operations For all hazardous waste burns the following constituents are designated as POHCs unless chemical or physical analysis shows they comprise less than 100 micrograms per gram of the waste:

   a. U044 Chloroform

   b. U228 Trichloroethylene

   c. U226 1,1,1-~~trichloromethane~~ trichloroethane

   d. U211 ~~Tetrachloroethane~~ Tetrachloromethane

2. Bulk-Feed Operations Whenever the hazardous waste feed contains ten percent by weight or more of any listed hazardous waste, each such constituent is designated a POHC.

V.E. MONITORING

For each hazardous waste burn, the continuous monitoring and/or recording devices below shall be observed hourly by an operator during waste feed operation and the observation recorded in the operating record. For purposes of this requirement, permanent charts which are made a part of the record may be initialed to document such observation. A log identifying the full name associated with the initials shall be included with the record.

1. Flue gas scrubber solution pH, "Process Sump pH Out";
2. Primary Combustion Chamber Temperature, "Lower Chamber Temperature";
3. Secondary Combustion Chamber Temperature, "Upper Chamber Temperature";
4. Waste Feed Rate;
5. Flue gas carbon monoxide content;
6. Secondary combustion chamber oxygen content, "Upper Chamber Oxygen";
7. Combustion ~~airflowrate~~ air flow rate, "Final Flow Totalizer";
8. Scrubber water recycle flow rate, "Absorber Liquid Flow" and "Quench Liquid Flow";
9. Total hydrocarbon reading from the exhaust stack;
10. Radioactivity from the exhaust stack.

V.F. OPERATION

During hazardous waste feed operations the following operational limits shall be observed:

1. Total Chloride Content The aggregate chlorine content of the waste plus fuel shall not exceed 99.4 pounds per hour input to the CAI. Each batch of waste shall meet this standard.

2. Waste Feed Rates

   a. Liquid hazardous wastes shall be introduced at a rate not to exceed 1.5 million Btu per hour total thermal input. Total thermal input shall include contributions from auxiliary fuel, hazardous and nonhazardous wastes.

   b. Solid hazardous wastes shall be introduced at a rate not to exceed 1.5 million Btu per hour total thermal input. Total thermal input shall include contributions from auxiliary fuel, hazardous and nonhazardous wastes. Of this feed rate, solid hazardous waste mixtures shall not exceed 125 pounds per hour.

3. Venturi Scrubber The pressure drop across the venturi scrubber shall be a minimum of forty inches W.C.

4. High Efficiency Particulate Air Filters The pressure drop across both on-line incinerator exhaust gas HEPA filter banks shall be a minimum of one-tenth inch W.C. or alternative equivalent manufacturer's performance specification.

5. Operating Temperatures

   a. The incinerator shall be brought to operating temperature in both the primary and secondary combustion chambers before hazardous wastes are introduced.

   b. Primary chamber operating temperature shall be a minimum of 1400 degrees Fahrenheit, measured at the hot duct between the primary and secondary chambers.

   c. Secondary chamber operating temperature shall be a minimum of 2000 degrees Fahrenheit, measured at the chamber exit to the high temperature duct.

   d. Temperatures shall be maintained above these minimums as long as hazardous wastes remain in the incinerator, except that during an emergency shutdown these temperatures need not be maintained after waste feed is terminated.

6. Effluent Control System Solution

   a. The effluent control system (ECS) scrubber solution shall be recycled to the packed column absorber at a minimum flow rate of 10 gallons per minute.

b. The ECS scrubber solution shall be controlled with either sodium hydroxide or potassium hydroxide to a pH range above 1.0 $\pm$ 3% .

7. Combustion Air

a. Exhaust gas flow shall not exceed:

(i) 3654 pounds per hour during solid or semisolid waste incineration; or

(ii) 3933 pounds per hour during liquid waste incineration.

b. Carbon monoxide concentration, as measured by the continuous recording carbon monoxide analyzer, shall not exceed 100 parts per million by volume, except that for a period not to exceed five minutes, the system may continue to burn waste if the carbon monoxide concentration does not exceed 500 parts per million.

c. Oxygen concentration in the secondary combustion chamber shall be a minimum of seven and one-half percent (7.5%) for solids and six percent (6%) for liquids. Measurement accuracy shall be $\pm$ 3%.

8. Total Hydrocarbon

a. Total hydrocarbon reading in the exhaust gas shall not exceed 20 parts per million corrected to dry stack gas for more than one hour rolling average where the stack gas is sampled at least 4 times per minute.

b. Total hydrocarbon reading in the exhaust gas shall not exceed 100 parts per million for more than one minute.

c. Total hydrocarbon reading in the exhaust gas shall not exceed 500 parts per million for any reading.

9. Radioactivity

a. The exhaust gas radioactivity measured during operation under this permit ~~shall!~~ shall not exceed the background by ten percent (10%) for more than one minute.

b. The exhaust gas radioactivity measured during operation under this permit shall not exceed the background by fifty percent (50%).

c. Background is defined as that level of radiation read when the incinerator is operating at the parameters required for hazardous waste treatment but no waste feed occurring measured prior to hazardous waste treatment.

10. Automatic Shutdown

    a. The Permittee shall install and properly maintain a system of monitors and automatic waste feed cutoff so that hazardous waste feed is shutdown whenever the operating conditions in permit paragraphs V.F.3. through V.F.9. above are not met.

    b. Hazardous wastes shall not be reintroduced to the incinerator until the cause of any automatic shutdown is determined and appropriate corrective action is taken.

11. Waste Handling Practices

    a. Wastes to be incinerated shall be stored only at storage areas authorized in permit paragraph III.A. above.

    b. Liquid and solid feed preparation operations which take place at the CAI shall be performed in accordance with the provisions of:

        (1) Los Alamos National Laboratory ~~Manual~~ Environment, Safety, and Health Manual, Chapter 1, ~~Health and Safety,~~ Current edition. A copy shall be readily available to the operator.

        (2) Permit Attachment J, "Incinerator Operational Safety." A copy shall be readily available to the operator.

        (3) The operating manual for the Controlled Air Incinerator. A copy shall be readily available to the operator.

        (4) The applicable Operating Instruction(s), Safe Operating Procedures, and/or Special Work Permit(s) required for the particular operation being conducted. A copy of the applicable document(s) shall be readily available to the operator.

    c. Sampling of wastes for analysis in accordance with Permit Attachment A. shall be done at the place of storage or at the incinerator waste feed tanks. Periodic quality control spot sampling may be done elsewhere in the incinerator area at the discretion of the inspector and with the approval of the incinerator supervisor.

V.G. EFFLUENT CONTROL

The incinerator effluent controls shall be operational at all times the incinerator is burning hazardous wastes.

1. Ash Control Ash resulting from a listed waste burn shall be cemented and disposed of off site as a hazardous waste. Ash resulting from incineration of characteristic wastes or wastes listed solely due to characteristic shall be disposed of as a hazardous waste or analyzed for alternate disposition. If such analysis demonstrates the waste is no longer characteristic as defined in

HWMR-5, as amended 1989, Part II, 40 CFR Section 261, subpart C, it may be disposed of in accordance with other applicable regulations.

2. Effluent Control System Effluent control system wastewater and filters shall be disposed of as a hazardous waste in accordance with applicable regulations. "Filters" as used herein applies to both the HEPA filters and the carbon absorber materials. The carbon absorber unit materials shall be replaced at intervals no longer than 2000 operating hours.

V.H. INSPECTION

The Permittee shall inspect the incinerator in accordance with Permit Attachment B. and the requirements below.

1. Spill Kits The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall be verified.

2. Instrumentation All gauges and instruments shall be inspected for calibration dates prior to incineration of wastes. No instrument or gauge shall be used if it has not been calibrated in accordance with its ~~manufacturers,~~ manufacturer's recommendations.

3. Warning Signs The legibility and condition of warning signs shall be included in the quarterly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

   a. Signs shall be at the entrances to the hazardous waste units. Collocated units may be included within one signed area.

   b. Signs shall say "Danger, Unauthorized Personnel Keep Out" and "Hazardous Waste Storage Area".

   c. Signs shall be in English and Spanish.

   d. Signs on approachable fences shall be spaced no more than 50 feet apart.

4. Automatic Cutoff The automatic cutoff system shall be tested every 2000 operating hours to demonstrate proper operation.

5. Destruction and Removal Efficiency The destruction and removal efficiency (DRE) shall be verified after incinerator modifications affecting the DRE, upon accumulation of eight thousand hours of hazardous waste incineration time or three years after the commencement of hazardous waste incineration (whichever occurs first), or if NMED determines that new information requires further testing of the incinerator. The time calculation shall be restarted following any verification required by this paragraph.

V.I ~~RECORDKEEPING~~ RECORD KEEPING

1. Waste History The incinerator operating record shall include the source, date of receipt, description, quantity and rate of incineration for each batch of hazardous waste incinerated.

2. Waste Analysis Records of waste analysis shall be kept in accordance with permit paragraph II.K.1.a. above.

3. Inspections Records of inspection shall be kept for three years from the date of the last action taken as a result of the inspection.

4. Automatic Waste Feed Cutoff Whenever the automatic waste feed cutoff system required by permit paragraph V.F.8. above operates, the cause, time and remedy or repair shall be entered in the operating record. This record shall include the testing or demonstration operations required by permit paragraph V.H.4. above.

5. Effluent Analysis

   a. Whenever sampling and analysis of the incinerator combustion exhaust or effluent control system scrubber solution are done, the sampling date, individual(s), methods and analytical results shall be entered in the operating record.

   b. Results of calculations of the DRE associated with effluent analysis shall be entered in the operating record.

V.J. CLOSURE

The incinerator shall be closed in accordance with HWMR-5, as amended 1989, Part V, Subpart G and Part V, 40 CFR Section 264.351, permit paragraphs II.L. and V.J. and Permit Attachment E.

1. Incinerator Components The waste feed components and combustion chambers, along with interconnecting plumbing, may be steam cleaned with a detergent solution. The spent cleaning solution shall be collected and analyzed for hazardous constituents. If no hazardous constituents are detected, those components may be considered closed. If hazardous constituents are detected, the steam cleaning may be repeated until no detectable hazardous constituents are found.

2. Effluent Control System The ECS may be drained and flushed with a detergent solution. The spent cleaning solution shall be collected and analyzed for hazardous constituents. If no hazardous constituents are detected, those components may be considered closed. If hazardous constituents are detected, the cleaning may be repeated until no detectable hazardous constituents are found.

3. Waste Storage Tanks The waste storage tanks may be either drained and washed with a detergent solution or steam cleaned. The spent cleaning solution shall be collected and analyzed for hazardous constituents. If no hazardous constituents are detected, those

components may be considered closed. If hazardous constituents are detected, the cleaning may be repeated until no detectable hazardous constituents are found.

4. Closure Residues

   a. All final cleaning solutions used for closure shall be tested for POHCs designated in permit paragraph V.D. above. Solutions showing detectible POHC(s) or hazardous waste characteristics shall be disposed of as hazardous wastes.

   b. Any component not decontaminated in accordance with permit paragraph V.J. above shall be disposed of as hazardous waste.

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
VI	1 of 3	C.1.	No	Change "Holding" to "holding".	1	A.2

MODULE VI STORAGE IN TANKS

VI.A. DESIGNATED STORAGE UNITS

The Permittee may store for more than ninety days hazardous wastes in tanks only in Technical Area 54, Area L.

VI.B. AUTHORIZED WASTES

1. Identification Only hazardous wastes identified in Permit Attachment G. with the process code "S02" in column D.1. "Processes" shall be stored.

2. Quantities No more than 5,720 gallons of liquid waste shall be stored at any one time.

VI.C. TANK DESCRIPTION

1. Capacity The tanks shall be nine feet in diameter and three feet six inches high, ~~Holding~~ holding approximately 1660 gallons.

2. Type They shall be constructed of ten-gauge carbon steel and shall be coated inside and out with Carboline Phenoline (@) film or equivalent.

3. Quantity No more than four tanks shall be used for storage.

4. Condition If a tank holding hazardous waste is not in good condition (e.g. severe rusting, structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such tank to a tank or container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

5. Compatibility of Waste with Tanks The Permittee shall assure, as required by HWMR-5, as amended 1989, Part V, 40 CFR Section 264.199, that the ability of the tank to contain the waste is not impaired.

VI.D. CONTAINMENT

The Permittee shall construct and maintain the secondary containment systems for the tank storage unit in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.193.

VI.E. IGNITABLE OR REACTIVE WASTE

The Permittee shall not locate tanks holding ignitable or reactive waste within 15 meters (50 feet) of the facility property line. The provisions of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.198 will be followed.

VI.F. INCOMPATIBLE WASTES

The Permittee shall manage incompatible wastes or incompatible wastes and materials in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.199.

VI.G. CLOSURE

The Permittee shall comply with the Closure Plan, Permit Attachment E. and permit paragraph II.L. above, for closure of permitted storage tanks.

VI.H. INSPECTION

1. Inspection Plan The Permittee shall inspect the tank storage areas in accordance with Permit Attachment B.

2. Spill Kits The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall be verified.

3. Accumulated Liquids In accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.193(c)(4), accumulated liquids discovered in secondary containment structures shall be removed within 24 hours of discovery. In the event inclement weather prevents such removal, the circumstances shall be documented in the facility record and the removal effected not later than the next duty day after the weather allows.

4. Repairs to Secondary Containment Structure Cracks and/or gaps in secondary containment structures discovered during an inspection will be repaired within seven calendar days of discovery. Cracks determined to be minor and not adversely affecting containment integrity, shall be logged and delay of repairs justified. Repair of minor cracks may be deferred until regularly scheduled maintenance.

5. Warning Signs The legibility and condition of warning signs shall be included in the quarterly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

    a. Signs shall be at the entrances to the hazardous waste units. Collocated units may be included within one signed area.

    b. Signs on approachable perimeter fences shall be spaced no more than 50 feet apart.

    c. Signs shall say "Danger, Unauthorized Personnel Keep Out," and "Hazardous Waste Storage Area".

    d. Signs shall be in English and Spanish.

6. Freeboard The tanks shall maintain a minimum of six inches of freeboard at all times.

VI.I. RESPONSE TO LEAKS OR SPILLS

The Permittee shall follow the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.196 in response to a leak or spill.

VI.J. CERTIFICATION OF REPAIRS

All major repairs to any tank or associated plumbing shall be certified in accordance with HWMR-5, as amended 1989, Part V, 40 CFR Section 264.196(f) prior to being placed back in service.

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Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
VII	All	Header	No	Change "Wasste" to "Waste".	1	A.2
VII	1 of 2	B.1.c.	No	Change "ignitability" to "ignitability".	1	A.2

MODULE VII INDUSTRIAL INCINERATOR OPERATION

VII.A. GENERAL CONDITIONS

1. Authorized Unit The unit is the Spronz Incinerator Corporation, model RL80-P incinerator located in Technical Area 16 and listed as structure 16-1409.

2. Destruction and Removal Efficiency Emissions from the incinerator shall meet all Federal and State air standards and regulations.

VII.B. WASTE IDENTIFICATION

1. Authorized Wastes

   a. Wastes listed as hazardous waste solely because they are ignitable, corrosive or both (F003).

   b. Wastes listed as hazardous waste solely because they are reactive.

   c. Wastes listed as hazardous wastes solely because they exhibit the characteristic(s) of ~~ignitabilty~~ ~~ignitability~~, corrosivity, or both.

   d. Wastes listed as hazardous wastes solely because they exhibit the characteristic of reactivity.

2. Prohibited Wastes

   a. No hazardous wastes other than those identified in permit paragraph VII.B.1. above shall be incinerated in this unit.

   b. No off-site wastes shall be incinerated.

VII.C. WASTE ANALYSIS

1. Waste Analysis Plan The Permittee shall follow Permit Attachment A. where applicable.

2. Batch Analysis Each batch to be incinerated shall be inspected by a knowledgeable individual for the presence of ignitable, corrosive or reactive wastes and the absence of prohibited wastes. A signed record of each inspection shall be retained in the facility records.

3. Initial Analysis Each new mixture of wastes not previously analyzed shall be analyzed prior to incineration for:

   a. Heating value;

b. Viscosity or physical form;

c. Identification of any hazardous constituent;

d. An approximate quantification of any hazardous constituent; and

e. The absence of any HWMR-5, as amended 1989, Part II, Appendix VIII constituent in a concentration in excess of one hundred micrograms per gram of waste.

VII.D. WASTE STORAGE

Wastes to be incinerated shall be stored in Technical Area 16, Building 290. Building 290 shall not accumulate hazardous wastes for greater than ninety days. All the requirements of HWMR-5, as amended 1989, Part III, 40 CFR Section 262.34 shall be met.

VII.E. RECORD KEEPING

1. Waste History The incinerator operating record shall include the source, date of receipt, description, quantity and date of incineration for each batch of hazardous waste incinerated.

2. Waste Analysis Where applicable, the sampling date, individual(s), method and analytical results for each batch sampled at the incinerator shall be entered in the operating record.

3. Closure The final disposition of the closure residues shall be recorded.

VII.F. CLOSURE

The incinerator shall be closed in accordance with the requirements of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.351 and Permit Attachment E.

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NO CLASS 1 MODIFICATIONS PROPOSED

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
VIII	Global	Global	No	Change "workplan" to "work plan" and "workplans" to "work plans".	1	A.2
VIII	1 of 56	A.	No	Change "Director" to "Secretary".	1	A.1
VIII	5 of 56	B.5.	No	Change "(j)(1)" to "(j)(1)".	1	A.2
VIII	5 of 56	C.1.a.	No	Change "TW-1A" to "TW-1A".	1	A.2
VIII	5 of 56	C.1.c.	No	Change "PM-1" to "PM-1".	1	A.2
VIII	5 of 56	C.1.d.	No	Change "MORENDAD" to "MORTANDAD".	1	A.2
VIII	5 of 56	C.1.g.	No	Change "appr." to "approximately".	1	A.1
VIII	6 of 56	C.1.	Yes[1]	Insert "40 CFR 264" before "Appendix IX constituents".	1	A.1
VIII	6 of 56	C.1.	No	Change "^{3}H,^{137}Cs,^{238}Pu,^{240}Pu" to " ^{3}H, ^{137}Cs, ^{238}Pu, ^{240}Pu".	1	A.2
VIII	6 of 56	C.1.g.(2).	No	Change "NGVD,1929" to "NGVD, 1929".	1	A.2
VIII	7 of 56	C.2.	No	Change "requirement" to "requirements".	1	A.2
VIII	8 of 56	C.6.	Yes[1]	Insert "40 CFR 264" before "Appendix IX constituents".	1	A.1
VIII	8 of 56	C.6.	No	Change "^{3}H,^{137}Cs, Total U, ^{238}Pu,^{240}Pu,^{241}Am" to " ^{3}H, ^{137}Cs, Total U, ^{238}Pu, ^{240}Pu, ^{241}Am".	1	A.2
VIII	8 of 56	D.	No	Change "offsite" to "off-site".	1	A.2
VIII	13 of 56	I.	No	Change I. "RCRA Facility Investigation (RFI)" to "RCRA FACILITY INVESTIGATION (RFI)".	1	A.2
VIII	17 of 56	Table A	No	Add "SWMUs Requiring an RFI Work Plan Submitted by May 23, 1994" to the title.	1	A.1
VIII	17 of 56	Table A	No	Change "(b,c,e,h)" to "(b, c, e, h)".	1	A.2
VIII	24 of 56	Table B	No	Add "RFI Work Plan Schedule" to the title.	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
VIII	24 of 56	Table C	No	Change "(a,b)" to "(a, b)".	1	A.2
VIII	25 of 56	Table C	No	Change title to initial caps.	1	A.1
VIII	26 of 56	I.4.	No	Add closing parenthesis after "Preparation".	1	A.2
VIII	27 of 56	I.5.	No	Change "offsite" to "off-site".	1	A.2
VIII	33 of 56	Task I	No	Change "preliminary" to "Preliminary".	1	A.2
VIII	34 of 56	Task I.B	No	Change "preliminary" to "Preliminary".	1	A.2
VIII	35 of 56	Task I.B.2.b.	No	Add comma after "hydrology".	1	A.2
VIII	39 of 56	D.8.	No	Change "Idelfonso" to "Ildefonso".	1	A.2
VIII	39 of 56	E.	No	Insert "personnel" after "qualifications of key project".	1	A.2
VIII	40 of 56	Task III A.2.	No	Change "Vicinity" to "vicinity".	1	A.2
VIII	41 of 56	Task III A.2.g.	No	Change "Ph" to "pH".	1	A.2
VIII	43 of 56	Task III C.1.d.	Yes[1]	Insert "40 CFR 264," before "Appendix IX constituents".	1	A.1
VIII	43 of 56	Task III C.3.	No	Change "Conduct" to "conduct".	1	A.2
VIII	44 of 56	Task III C.3.e.	No	Change "Ph" to "pH".	1	A.2
VIII	45 of 56	Task IV	No	Change "quality" to "Quality".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
VIII	47 of 56	R.	Yes[2]	Delete "Those tasks, and the ER Program documents/activities that are equivalent to the CMS documents/activities are listed on the following page".	1	A.1
VIII	47 of 56	R.	Yes[2]	Insert ", which are listed below" and list of CMS tasks after "the CMS consists of four tasks".	1	A.1
VIII	51 of 56	Task VII A.1.c. and A.1.c.(i).	No	Change "constructibility" to "constructability".	1	A.2

[1] This change is being made to identify the Appendix IX constituents as belonging to 40 CFR 264.

[2] This modification complements previous permit modifications that removed references to equivalent documents/activities and reinstates CMS task information from a previously deleted table to clarify the scope of the CMS.

SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS TO RCRA FOR LOS ALAMOS NATIONAL LABORATORY

MODULE VIII

EPA I.D. NM0890010515

Module VIII. SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS TO RCRA FOR LOS ALAMOS NATIONAL LABORATORY, EPA I.D. NM0890010515

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A. DEFINITIONS

For purposes of this Corrective Action Schedule of Compliance the following definitions shall apply:

"Facility" means all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

"Solid waste management unit" means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at or around a facility at which solid wastes have been routinely and systematically released.

"Hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The term hazardous waste includes hazardous constituent as defined below.

"Hazardous constituent" means any constituent identified in Appendix VIII of 40 CFR Part 261, or any constituent identified in Appendix IX of 40 CFR Part 264.

"Administrative Authority" means the ~~Director~~ Secretary of the New Mexico Environment Department, or his/her designee or, in case of HSWA provisions (Module VIII) for which the State is not authorized, the U.S. Environmental Protection Agency shall be the Administrative Authority.

If subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, the Administrative Authority may, at its discretion, apply the new definition to this permit.

B. SPECIFIC CONDITIONS

1. Waste Minimization

The Permittee shall submit to the Administrative Authority a certified plan annually by December 1, for the previous year ending September 30th, that:

a. The Permittee has a program in place to reduce the volume and toxicity of all hazardous wastes which are generated by the Permittee's facility operation to the degree determined to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment. This certified plan must address the items below:

(1) Any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the facility.

(2) Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities for all hazardous/mixed wastes;

(3) Any source reduction and/or recycling measures implemented in the last five years or planned for the near future;

(4) An itemized list of the dollar amounts of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste;

(5) Factors that have prevented implementation of source reduction and/or recycling;

(6) Sources of information on source reduction and/or recycling received at the facility (e.g. local government, trade associations, suppliers, etc.);

(7) An investigation of additional waste minimization efforts which could be implemented at the facility. This investigation shall analyze the potential for reducing the quantity and toxicity of each waste stream through production process change, production reformulation, recycling, and all other appropriate means. The analysis shall include an assessment of the technical feasibility, cost, and potential waste reduction for each option;

(8) The Plan shall include a flow chart or matrix detailing all hazardous wastes it produces, by quantity and type, including mixed waste, and by building/area and program if consistent with security considerations;

(9) The Permittee shall demonstrate the need to use those processes which produce a particular hazardous waste due to a lack of alternative processes, available technology, or available alternative processes that would produce less volume of toxic waste; and

(10) The Permittee shall demonstrate the applicability/inapplicability of the following waste minimization techniques:

(a) A program that inventories the amount of contaminated lead that exists at the facility;

(b) A program that substitutes steel for lead (whenever possible);

(c) If it is impossible to substitute steel for lead, the lead is coated with a strippable coating to prevent its' entire contamination;

(d) A program or bench scale method to decontaminate the contaminated lead;

(e) Use of non-hazardous liquid scintillation cocktail solution; and

(f) A program designed to prevent commingling of radioactive waste.

The Permittee shall include the certified plan in the operating record.

2. Dust Suppression

Pursuant to 40 CFR 266.23(b), the Permittee shall not use waste or used oil or any other material, which is contaminated with dioxin, PCB, or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment.

3. Compliance with Permit

Compliance with this permit during its term constitutes compliance, for the purposes of enforcement, with 40 CFR Parts 264 and 266 only for those management practices specifically authorized by this permit. The Permittee is also required to comply with Parts 260, 261, 262, and 263 to the extent the requirements of those Parts are applicable.

4. Specific Waste Ban

a. The Permittee shall not place in any land disposal unit the wastes specified in RCRA Section 3004 after the effective date of the prohibition unless the Administrator has established disposal or treatment standards for the hazardous waste, and the Permittee meets such standards and other applicable conditions of this permit;

b. The Permittee may store wastes restricted under 40 CFR 268 solely for the purpose of accumulating quantities necessary to facilitate proper recovery, treatment, or disposal provided that it meets the requirements of 40 CFR 268.50(a)(2) including but not limited to clearly marking each tank or container;

c. The Permittee is required to comply with the all the requirements of 40 CFR 268.7 as amended. Changes to the waste analysis plan will be processed as minor modifications, pursuant to 40 CFR 270.42;

d. The Permittee shall perform a waste analysis at least annually or on each batch as necessary to determine whether the waste meets applicable treatment standards. Results shall be maintained in the operating record; and

e. Compliance with a RCRA permit during its term constitutes compliance, for the purpose of enforcement, with Subtitle C of RCRA except for those requirements not included in the permit which become effective by statute, or which are promulgated under Part 268 restricting the placement of hazardous wastes in or on the land.

5. Closure

Pursuant to Section 3005 (j)~~(1)~~(1) of the Hazardous and Solid Waste Amendments of 1984, the Permittee shall close surface impoundment(s) in existence on November 8, 1984 and qualifying for interim status (see Federal Register 24717-24720, 6/30/88) in accordance with the following provisions:

a. The Permittee shall not place hazardous waste in the surface impoundment(s); and

b. The Permittee shall close the surface impoundment(s) in accordance with the closure plan(s) approved by the New Mexico Environment Department.

6. Operation of Land Disposal

The Permittee shall not place hazardous waste in any surface impoundment or landfill unless such unit has a permit meeting the minimum technological requirements (MTRs) outlined in Section 3004(o) of the Resource Conservation and Recovery Act. The Administrative Authority must approve the plans and specifications for retrofitting prior to commencement of construction.

7. Additional Waste Ban Requirements

The Permittee shall not land dispose any hazardous waste restricted by 40 CFR 268 unless:

a. The waste meets treatment standards specified in 40 CFR 268.40, .41, .42, or .43;

b. A variance from the treatment standards has been granted pursuant to 40 CFR 268.44;

c. A petition has been granted on a case-by-case extension to the effective date, pursuant to 40 CFR 268.5;

d. A "no-migration" petition has been granted pursuant to 40 CFR 268.6; or

e. The surface impoundment is exempt under 40 CFR 268.4.

C. SPECIAL PERMIT CONDITIONS

Within the designated timeframes the Permittee shall undertake the following measures concurrent with the RCRA Facility Investigation required in Module VIII D. Each submittal shall be clearly referenced as to the requirement which is being fulfilled.

1. Perched Zone Monitoring

In order to determine the extent of downgradient saturation and contamination, the Permittee shall install, at a minimum, the following wells and borings in the perched saturated alluvium in the specified canyons, within 90 days of the effective date of this permit;

a. PUEBLO CANYON
1 exploratory boring near TW-~~(1A)~~(1A)

b. LOS ALAMOS CANYON
1 monitoring well near LAO-3
1 monitoring well near LAO-4.5
1 monitoring well near LAO-5

c. SANDIA CANYON
1 monitoring well near PM-~~1~~1
1 monitoring well near PM-3

d. ~~MORTENDAD~~ MORTANDAD CANYON
1 monitoring well near MCO-4
1 monitoring well near MCO-6
1 monitoring well near MCO-7.5

e. POTRILLO CANYON
1 monitoring well near State Road 4

f. FENCE CANYON
1 monitoring well near State Road 4

g. WATER CANYON
1 monitoring well near State Road 4
1 monitoring well ~~appr.~~ approximately 1 mile west of State Road 4
1 monitoring well ~~appr.~~ approximately 2 miles west of State Road 4

Within 30 days of installation of wells, the Permittee shall have gathered groundwater elevation data, and developed and submitted a map to the Administrative Authority which delineates the

known extent of perched groundwater at the facility. Within 90 days of installation of wells, the Permittee shall sample each well for 40 CFR 264 Appendix IX constituents, Gross Gamma, Gross Alpha, Total U, ~~^{3}H, ^{137}Cs, ^{238}Pu, ^{240}Pu~~ ^{3}H, ^{137}Cs, ^{238}Pu, ^{240}Pu. Analytical results from those samples shall be sent to the Administrative Authority within 120 days of well installation.

If wells are not installed in the above referenced saturated zones, the Permittee shall provide sufficient evidence to the Administrative Authority that the referenced zones do not exist at that particular location. Upon approval by the Administrative Authority the particular well(s) will be struck from further requirements.

The monitoring wells installed under this and following sections of this permit shall be constructed using flush-joint, internal upset, threaded (or an equivalent method of joining without rivets, screws and glues) casing manufactured from inert materials. The boreholes for casings and screens shall be a minimum of six (6) inches greater in diameter than the well casing or screen outer diameter. Filter pack and screen slot openings shall be sized based on formation grain size and characteristics. Well screen lengths shall be no more than (10) ten feet in length. The filter pack shall extend no more than (2) two feet above the top of the screen and shall not cross any clay layers which may act as aquitards. If a bentonite seal is used, the bentonite shall be allowed to hydrate a minimum of (12) twelve hours before emplacement of grout. Grout shall be emplaced using a tremie pipe to ensure a consistent seal at depths greater than 5 feet, and grout shall be allowed to set a minimum of twelve hours before initiating development.

Development procedures shall include purging of the well until contaminants introduced during drilling can be assured of being removed. Development shall also include surging with a surge plug, and either bailing or pumping until the nephelometric turbidity units (N.T.U.) can be consistently measured at five (5) or less, if possible. Well head construction shall include a well pad keyed into the well annulus and a system to secure the well from traffic and unauthorized access. Within thirty (30) days of construction and development of the last well required under this section, the Permittee shall submit to the Administrative Authority a report and map including:

(1) Survey of location of each well;

(2) Surveyed ground level, top of casing and top of well pad referenced to known elevation datum ~~(NGVD,1929)~~ (NGVD, 1929);

(3) Static water level, referenced to mean sea level;

(4) Well construction data (including a diagram for each well, detailing total depth, screen placement, gravel pack, annular seal, borehole and casing size [all measured to within 0.1 foot]), and well log data; and

(5) Well development data.

After the information from these wells is reviewed, the Administrative Authority may require the installation of more wells to more fully define the extent of contamination.

2. Monitoring of Surface and Ground Water

Extensive monitoring of surface and ground water is now conducted and documented annually by the Permittee's Environmental Surveillance Program in accordance with DOE Orders. This program shall be continued in order to demonstrate protection of the main aquifer, and the annual reports shall be submitted to EPA. Any pertinent ongoing investigations by the U.S.G.S. that are applicable to this module shall be summarized in the LANL Environmental Surveillance Report. Within 120 days of the effective date of this permit, the Permittee shall submit to the Administrative Authority a summary describing the ongoing monitoring program, including sampling points, media, and constituents analyzed for. If EPA determines that this ongoing monitoring program is not sufficient, then EPA may impose additional monitoring ~~requirement~~ requirements as a modification to this permit.

3. Sediment Traps, Mortandad Canyon

The Permittee shall, through the maintenance of existing sediment traps or construction of new sediment traps, ensure containment of all residual sediment contamination within the facility boundary.

4. Protection of the Main Aquifer

Any boring drilled to a depth of 300 feet or deeper shall grout in a surface casing to prevent any downward migration of surface contamination along the wellbore. Any boring drilled into the main aquifer that encounters perched water shall set conductor pipe to the top of the main aquifer and hydraulically isolate the main aquifer from the perched aquifer. The annular space must be sealed with a bentonite grout or equivalent to prevent shrinkage cracking.

5. Unsaturated Zone Monitoring

The Permittee shall continue the quarterly pore gas sampling program and resume the vadose zone plume delineation program at TA-54. Due to the unique hydrogeologic conditions throughout this facility, effective monitoring of the unsaturated zone will be essential for a successful RFI/CMS. The information gathered from this program now will help provide direction for investigations to be conducted during the RFI.

6. Vertical Extent of Saturation

The Permittee shall conduct a subsurface investigation of saturation by drilling test holes through the shallow alluvial perched aquifer in Mortandad Canyon. Construction of the test holes will hydraulically isolate the perched aquifer from the underlying unsaturated tuff. This perched aquifer is recharged in part from wastewater treatment discharges located upstream. The investigation shall provide an initial evaluation of the maximum extent of the vertical and horizontal water and contaminant movement into the unsaturated tuff beneath the saturated

alluvium. The study shall attempt to recover cores from the tuff to be used to determine laboratory values for unsaturated hydraulic conductivity conductance, specific retention and specific yield, effective porosity and saturated permeability. The boring shall be analyzed for applicability of installation of neutron moisture probe access tubes to determine moisture over time. Chemical and radiochemical analyses of the cores shall also be made to assist in the determination of fluid movement from the perched alluvial aquifer into the underlying unsaturated tuff. The chemical analysis shall include 40 CFR 264 Appendix IX constituents, while the radiochemical analysis shall include ~~^{3}H, ^{137}Cs~~ ^{3}H, ^{137}Cs, Total U, ^{238}Pu, ~~^{239}Pu, ^{240}Pu, ^{241}Am~~ ^{239}Pu, ^{240}Pu, ^{241}Am, Gross Gamma, and Gross Alpha, as appropriate. A report detailing the results of this study shall be submitted within one year of the effective date of this permit.

7. QA/QC Evaluation

Within 90 days of issuance of this permit, the Permittee shall develop and submit to the Administrative Authority a complete detailed QA/QC description of current RCRA/HSWA field sampling and laboratory analysis procedures.

8. Identification and Summary of Previous Studies

Within 120 days of the effective date of this permit, the Permittee shall develop and submit to the Administrative Authority, a reference of all known geologic, hydrogeologic and all environmental studies relevant to potential contamination or migration of contamination from SWMUs, previously performed at and/or by the facility, with a summary of the scope of the study, and significant findings thereof.

D. CORRECTIVE ACTION FOR CONTINUING RELEASES

Section 3004 (V) of RCRA (Section 207 of the Hazardous and Solid Waste Amendments of 1984) and federal regulations promulgated as 40 CFR 264.101, require corrective action beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where ~~offsite~~ off-site access is denied.

Section 3004(u) of RCRA (Section 206 of the Hazardous and Solid Waste Amendments of 1984) and federal regulations promulgated as 40 CFR 264.101 require corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any SWMU, regardless of when waste was placed in the unit, for all permits issued after November 8, 1984.

This section of the permit requires the Permittee to perform a RCRA Facility Investigation (RFI) to address known or suspected releases from specified SWMUs to affected media (i.e., soil, groundwater, surface water and air). For these units, corrective measures will be proposed by the Permittee as warranted by the results of the RFI.

Failure to submit the required information or falsification of any submitted information is grounds for termination of this permit (40 CFR 270.43). The Permittee shall certify all information submitted as required by 40 CFR 270.11(d).

The required information shall include each item specified under RFI Tasks I-V and CMS Tasks VI-X. Since these required items are essential elements of this permit, failure to submit any of these elements or submission of inadequate or insufficient information may subject the Permittee to enforcement action under Section 3008 of RCRA which may include criminal penalties, fines, suspension or revocation of the permit.

If the Administrative Authority finds that corrective measures are warranted after the approval of the RFI report, the Administrative Authority will propose a permit modification and follow appropriate procedures including a public notice period and a public hearing, if warranted.

The Permittee shall undertake and complete each of the following actions to the satisfaction of the Administrative Authority and in accordance with the terms and procedures set forth in Condition P Scope of Work for a RCRA Facility Investigation. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided.

All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Corrective Action Schedule of Compliance shall be maintained at the facility during the term of this Permit, including any reissued Permits.

All plans and schedules required by the conditions of this Corrective Action Schedule of Compliance are, upon approval of the Administrative Authority, incorporated into this Schedule of Compliance by reference and become an enforceable part of this Permit. Any noncompliance with such approved plans and schedules shall be termed noncompliance with this Permit. Extensions of the due dates for submittals may be granted by the Administrative Authority in accordance with the permit modification process under 40 CFR 270.42.

The Permittee may propose as the equivalent process the applicable portions of the ongoing U.S. Department of Energy (DOE) Environmental Restoration (ER) Program which is patterned after and also complies with the CERCLA remedial process. EPA will evaluate the process for equivalency with RCRA requirements.

All work (information, reports, investigations remediations, etc) required by this Module (VIII) will be deemed as "functionally equivalent" of an Environmental Impact Statement (EIS). Therefore, the requirements of the National Environmental Policy Act will not apply to work required by Module VIII. (Note: See case Alabamians for a Clean Environment vs. Thomas, No CV87-0797-W (N.D.Ala. December 7, 1987)).

The Los Alamos National Laboratory (LANL) is implementing the ER Program as a number of tasks (approximately 50) due to the large number of potential release sites at LANL. The ER Program strategy for dealing with the large number of tasks is to prepare a single installation-wide work plan and task--

specific RI/FS documents for each task. Some generic aspects of the RFI Operable Unit (OU) Specific ~~Workplans~~ Work Plans (Task II) will be incorporated into the Installation ~~Workplan~~ Work Plan as appropriate, and not repeated in the OU ~~Workplans~~ Work Plans. Depending on site-specific findings during the Corrective Action Plan process, a site within a task may be removed by a determination that no further action is necessary. A site may also be assigned, to a different task, for example, by implementing interim corrective measures. Either of these actions may be taken by the Permittee with the approval of the Administrative Authority. Such changes will be processed as major modifications, if appropriate, annually.

These documents and their associated activities shall be equivalent to those described in the Scope of Work for a RCRA Facility Investigation and the Scope of Work for a RCRA Corrective Measure Study.

The LANL installation RI/FS Work Plan shall contain the programmatic elements of the RFI Work Plan, installation-wide descriptions of the current conditions, tabular summaries (site type, type and volumes of waste, potential contaminants, potential remedial action, and annual site status) of the potential release sites (by task), prioritization of sites/tasks, and a work schedule. The task specific RI/FS documents/ process shall contain all the site specific elements of the RFI. The LANL installation RI/FS work plan shall contain outlines for the task-specific RI/FS documents to demonstrate equivalency to RFI and CMS documents.

The LANL Installation RI/FS Work Plan shall be updated annually, as appropriate. The work schedule shall be depicted on a time scale format, and will be five (5) years in length. The current fiscal year shall be shown on a monthly time scale, in sufficient detail to identify all CERCLA primary document submittals (task/site sampling and analysis plans, task/site Remedial Investigation reports, and task/site Feasibility Study reports), major milestones (start and finish of Task/Site RI/FS's), and Interim milestones (Draft Primary documents and Final Primary Documents; Start and Completion or Field Activities). The second year shall be shown on a quarterly scale, with the remaining three years on an annual scale in sufficient detail to identify major milestones for all primary document submittals. In addition, a listing describing each of the milestones depicted on the work schedule (each task) shall be provided.

The work schedule shall be updated, at a minimum, annually with the primary purpose to expand the new current fiscal year and follow-on year, and add an additional year at the end. In addition, any approved schedule changes shall be incorporated at this time, if not previously incorporated. This annual update shall be performed in the fourth quarter of the previous fiscal year. The draft LANL installation RI/FS ~~workplan~~ work plan shall be submitted to the Administrative Authority by November 19 of each year. The work schedule may be revised at any time during the year for significant changes (e.g., major change in funding). The annual updates, or revisions due to significant changes, to the work schedule shall require new approval by the Administrative Authority.

E. DISPUTE RESOLUTION

1. The parties shall use their best efforts to informally and in good faith resolve all disputes or differences of opinion. If, however, disputes arise concerning the corrective action which the parties are unable to resolve informally, the following procedures shall apply. If Permittee's dispute concerns its inability to meet a specified deadline, then Permittee is obligated to raise the issue at least 30 days in advance of the deadline.

2. EPA shall provide Permittee written notice of its disapproval or modification of any interim submission including, but not limited to, implementation of ~~workplans~~ work plans, approval of documents, scheduling of any work, or selection, performance, or completion of any correction action. The written notice of disapproval shall set forth the reasons for the disapproval or modification. If the Permittee disagrees, in whole or in part, with any such written notice, the Permittee shall notify the RCRA Permits Branch Chief, in writing, within 10 days of receipt of the written notice. The Permittee and the RCRA Permits Branch staff shall use their best efforts to informally and in good faith resolve the dispute. The Permittee is entitled to meet with RCRA Permits Branch staff in person at the Region 6 offices or by teleconference, if it so desires, in order to resolve the dispute.

3. If Permittee and the RCRA Permits Branch staff are unable to resolve the dispute, the Permittee may request a final decision by the Hazardous Waste Division Director (the official who has delegated authority to make final decisions on the permit). Within 30 days of its receipt of EPA's written notice, the Permittee shall submit to the Hazardous Waste Division Director a written statement of its arguments and explanations of its position. The written statement should include, at a minimum, the specific points of dispute, the position the Permittee maintains should be adopted as consistent with the Permit requirements and the basis therefore, any matters which it considers necessary for proper determination of the dispute, and whether the Permittee requests an informal conference in front of the Hazardous Waste Management Division Director. The Permittee's failure to follow the procedures set forth in this paragraph will constitute a waiver of its right to further consideration of the dispute.

4. EPA, at its discretion, will determine whether an informal conference, if requested by the Permittee, will be held.

5. The Hazardous Waste Management Division Director shall consider the written position of the Permittee and the oral arguments, if an informal conference is convened, and shall provide a written statement of his decision based on the record, which statement shall be considered to be incorporated as an enforceable part of the permit. The written statement shall respond to the Permittee's arguments and shall set forth the reasons for the EPA's final decision. Such decision shall be the final resolution of the dispute and shall be implemented immediately by the Permittee according to the schedule contained therein. Such decision does not constitute final agency action for the purposes of judicial review.

6. Not withstanding the invocation of this dispute resolution procedure, the Permittee shall proceed to take any action required by those portions of the submission and of the permit that EPA determines are not substantially affected by the dispute.

F. REPORTING REQUIREMENTS

1. Copies of other reports (e.g., inspection reports),drilling logs and laboratory data shall be made available to the Administrative Authority upon request.

2. As specified under Permit Conditions G and H, the Administrative Authority may require the Permittee to conduct new or more extensive assessments, investigations, or studies, as needed, based on information provided in these progress reports or other supporting information.

G. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

1. The Permittee shall notify the Administrative Authority in writing of any newly-identified SWMU(s) (e.g., a unit not specifically identified during the RFA) discovered during the course of ground water monitoring, field investigations, environmental audits, or other means, no later that fifteen (15) calendar days after discovery. The Permittee shall propose the schedule for corrective actions.

2. After such notification, the Administrative Authority may request, in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.

3. Within ninety (90) calendar days after receipt of the Administrative Authority's request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan for determining past and present operations at the unit, as well as any sampling and analysis of ground water, land surface and subsurface strata, surface water or air, as necessary to determine whether a release of hazardous waste including hazardous constituents from such unit(s) has occurred, is likely to have occurred, or is likely to occur. The SWMU Assessment Plan shall demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and shall include parameters sufficient to identify migration of hazardous waste including hazardous constituents from the newly-discovered SWMU(s) to the environment.

4. After the Permittee submits the SWMU Assessment Plan, the Administrative Authority will either approve or disapprove the Plan in writing.

   If the Administrative Authority approves the Plan, the Permittee shall begin to implement the Plan within fifteen (15) calendar days of receiving such written notification.

   If the Administrative Authority disapproves the Plan, the Administrative Authority will either (l) notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised Plan, or (2) revise the Plan and notify the Permittee of the revision. This Administrative Authority-revised Plan becomes the approved SWMU Assessment Plan. The Permittee shall implement the Plan within fifteen (15) calendar days of receiving written approval.

5. The Permittee shall submit a SWMU Assessment Report to the Administrative Authority no later than sixty (60) calendar days from completion of the work specified in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. At a minimum, the Report shall provide the following information for each newly-identified SWMU:

a. The location of the newly-identified SWMU in relation to other SWMUs;

b. The type and function of the unit;

c. The general dimensions, capacities, and structural description of the unit (supply any available drawings);

d. The period during which the unit was operated;

e. The specifics on all wastes that have been or are being managed at the SWMU, to the extent available; and

f. The results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes including hazardous constituents have occurred, are occurring, or are likely to occur from the unit.

6. Based on the results of this Report, the Administrative Authority shall determine the need for further investigations or corrective measures at specific unit(s) covered in the SWMU Assessment. If the Administrative Authority determines that such investigations are needed, the Administrative Authority may require the Permittee to prepare a plan for such investigations. This plan will be reviewed for approval as part of the RFI ~~Workplan~~ Work Plan under Permit Condition I.

H. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMU(S)

The Permittee shall notify the Administrative Authority, verbally, of any release(s) of hazardous waste including hazardous constituents in which there is a statistically significant increase over the background data for the media of concern, during the course of ground water monitoring, field investigation, environmental auditing, or other activities undertaken after the commencement of the RFI, no later than twenty four (24) hours after discovery. This notification must also be made in writing within 15 days of discovery. Such newly-discovered releases may be from newly identified units, from units for which, based on the findings of the RFA, the Administrative Authority has previously determined that no further investigation was necessary, or from units investigated as part of the RFI. The Administrative Authority may require further investigation of the newly-identified release(s). A plan for such investigation will be reviewed for approval as part of the RFI ~~Workplan~~ Work Plan.

~~I. RCRA Facility Investigation (RFI)~~ I. RCRA FACILITY INVESTIGATION (RFI)

1. Preliminary Report (LANL Installation RFI Work Plan)

Within one hundred eighty (180) days of the effective date of this permit, the Permittee shall submit to the Administrative Authority a Preliminary Report describing the current conditions at the facility as outlined in the RFI scope of work, Task I (Section Q.1.). The Preliminary Report is limited to SWMUs not identified in the Part B or to recent information not addressed in the RCRA Facility Assessment or in the LANL December 1988 SWMU report. The

Preliminary Report shall address the background information pertinent to the facility and the nature and extent of contamination.

The LANL Installation RFI ~~Workplan~~ Work Plan (as part of the RFI Task I, part A.) shall include an overview of the installation-wide Los Alamos hydrogeological environment. This overview shall be a summary description of the major features and conceptual interrelationships of the hydrogeological environment at Los Alamos. It shall address the regional and installation-wide geologic setting and hydrologic characteristics affecting the occurrence, movement, and interaction of surface and subsurface water with a view toward understanding potential pathways for transport of contaminants.

This overview shall provide a guide and referencing to appropriate maps submitted with the installation ~~workplan~~ work plan and to appropriate detailed information in the significant geologic and hydrologic reports and studies listed and summarized in the task "Identification and Summary of Previous Studies" required under Section C.8, Special Permit Conditions. The overview shall be reviewed and updated as appropriate annually (as part of the Installation ~~Workplan~~ Work Plan update) to incorporate the major findings with installation-wide significance from studies conducted under either the Special Permit Conditions or the Task/Site RFI investigations.

2. RFI Work Plan (LANL Installation RFI Work Plan)

Within one hundred eighty (180) days of the effective date of this permit, the Permittee shall submit to the Administrative Authority for approval a RFI Work Plan, as outlined in the RFI scope of work, Condition Q., Task II. The scope of the RFI shall include units and releases to the affected media specified in the LANL Installation RFI Work Plan, which shall be updated and approved annually.

After the Permittee submits the RFI Work Plan, the Administrative Authority will approve, disapprove or modify the plan. If the Administrative Authority approves the plan, the Permittee shall immediately initiate implementation of the plan according to the schedule contained therein.

In the event of disapproval (in whole or in part) of the plan, the Administrative Authority will specify any deficiencies in writing. The Permittee shall modify the plan to correct these within the time frame required by the Administrative Authority. If additional time is required, the Permittee must provide a written request for time extension with justification for the extension. No extension is granted unless the Administrative Authority provides written notice of such extension within ten (10) days of the Administrative Authority's receipt of the Permittee's written request. The modified plan shall be submitted in writing to the Administrative Authority for review. Should the Permittee take exception to all or part of the disapproval, the Permittee shall submit to the Administrative Authority a written statement of the grounds for the exception within 15 days of receipt of the disapproval by the Administrative Authority.

If disagreements cannot be resolved, the Administrative Authority may make further modifications as required. If the Administrative Authority modifies the plan, this modified plan

becomes the approved RFI Work Plan. The Permittee shall immediately initiate implementation of the approved RFI Work Plan according to the schedule contained therein.

3. RFI Work Plan (Schedule of Submittals)

The Permittee shall submit to the Administrative Authority for approval an RFI Work Plan as outlined in the RFI scope of work, Task II, Section Q.2. The scope of the RFI Work Plan shall address all necessary action to verify and determine the nature and extent of releases of hazardous waste or hazardous constituents from solid waste management units. As appropriate and with the approval of the Administrative Authority, the RFI Work Plan shall be developed and implemented using the phased approach as described in EPA Corrective Action Plan guidance documents. Information obtained during the preceding phase shall be incorporated in the modified RFI Work Plan for the subsequent phase. The draft RFI Report shall be prepared when all phases of the RFI have been completed to the satisfaction of the Administrative Authority. The RFI shall gather all necessary data to support the Corrective Measures Study (CMS) described below. The CMS will be required if the data gathered during the RFI is, in the judgement of the Administrative Authority, sufficient to require one. The scope of the RFI shall include, but not be limited to, the following units and include releases to all media (see Tables A, B & C). These tables identify all SWMUs required for an RFI under this permit. Table B is a subset of Table A and contains the priority SWMU's. The SWMUs in these tables were originally numbered using the LANL SWMU Report, December, 1988. They have since then been renumbered to be consistent with the DOE 1990 SWMU Report.

a. The Permittee shall include in the Task/Site RFI ~~Workplans~~ Work Plans within 1 year of the effective date of the permit, 10% of those SWMUs listed in Table A. This ~~Workplan~~ Work Plan shall include 20% of those SWMUs listed in Table B (Table B is a subset of Table A).

b. The Permittee shall include in the RFI Task/Site ~~Workplans~~ Work Plans within 2 years of the effective date of the permit, an additional 25% (cumulative total of 35%) of those SWMUs listed in Table A. This ~~Workplan~~ Work Plan shall include an additional 35% (cumulative total of 55%) of those SWMUs listed in Table B.

c. The Permittee shall include in the Task/Site RFI ~~Workplans~~ Work Plans within 3 years of the effective date of the permit following the staggered schedule shown in Table D, an additional 20% (cumulative total of 55%) of those SWMUs listed in Table A. This ~~Workplan~~ Work Plan shall include the remaining 45% (cumulative total 100%) of those SWMUs listed in Table B.

d. The Permittee shall include in the Task/Site RFI ~~Workplans~~ Work Plans within 4 years of the effective date of the permit, all SWMUs (cumulative total 100%) listed in Table A. SWMUs identified after the LANL SWMU Report, December, 1988 may be required to do an RFI, if deemed necessary by the Administrative Authority.

e. The Permittee shall include the eighty-one (81) SWMUs listed in Table C, column 1, in the RFI ~~Workplan~~ Work Plan due to the Administrative Authority July 7, 1994.

f. The Permittee shall include the fifty-one (51) SWMUs listed in Table C, column 2 in the RFI ~~Workplan~~ Work Plan due to the Administrative Authority July 7, 1995.

g. The Permittee shall include the fifty-six (56) SWMUs listed in Table C, column 3 in the RFI ~~Workplan~~ Work Plan due to the Administrative Authority May 21, 1995.

h. The CMS Final Report for all SWMU's shall be submitted within 10 years of the effective date of this permit.

TABLE A
SWMUs Requiring an RFI Work Plan Submitted by May 23, 1994

Technical Area O

SWMU Number

0-001
0-003
0-005
0-011 (a)
0-011 (c-e) **(21)**
0-012
0-016
0-017
0-018 (a)
0-019
0-028 (a-b)
0-030 (a-b)
0-030 (g)
0-030 (l-m)
0-033
0-039

Technical Area 1

1-001 (a-o)
1-001 (s-u)
1-002
1-003 (a) **(36)**
1-003 (d-e)
1-006 (a-d)
1-006 (h)
1-006 (n-o)
1-007 (a-e)
1-007 (j)
1-007 (l)

Technical Area 2

2-005
2-006 (a-b) **(9)**
2-007
2-008 (a-b)
2-009 (a-c)

Technical Area 3

3-001 (a-c)
3-001 (k)

Technical Area 3 Cont.

3-002 (b-c)
3-003 (a-c)
3-009 (a-h)
3-010 (a)
3-012 (a-b)
3-013 (a)
3-014 (a-u)
3-015 **(61)**
3-018
3-020 (a)
3-026 (d)
3-028
3-033
3-035 (a-b)
3-036 (a)
3-036 (c-d)
3-037
3-038 (a-b)
3-039 (a)
3-043 (e)
3-044 (a)
3-056 (a)
3-056 (c)

Technical Area 4

4-001
4-002 **(4)**
4-003 (a-b)

Technical Area 5

5-001 (a-b)
5-002
5-003 **(11)**
5-004
5-005 (a-b)
5-006 ~~(b,c,e,h)~~ (b, c, e, h)

Technical Area 6

6-001 (a-b)
6-002
6-003 (a) **(19)**
6-003 (c-h)
6-005

Technical Area 6 Cont.

6-006
6-007 (a-g)
(161)

Technical Area 7

7-001 (a-d) **(6)**
7-003 (c-d)

Technical Area 8

8-002
8-003 (a-c)
8-004 (a-d)
8-005 **(16)**
8-006 (a-b)
8-007
8-009 (a)
8-009 (d-e)
C-8-010

Technical Area 9

9-001 (a-d)
9-002
9-003 (a-i) **(43)**
9-004 (a-o)
9-005 (a-h)
9-006
9-007
9-008 (b)
9-009
9-013
C-9-001

Technical Area 10

10-001 (a-d)
10-002 (a-b)
10-003 (a-o) **(26)**
10-004 (a-b)
10-005
10-006
10-007

Technical Area 11

11-001 (a-c)
11-002

Technical Area 11 Cont.

11-004 (a-e)
11-005 (a-c) **(22)**
11-006 (a-d)
11-007
11-009
11-011 (a-d)

Technical Area 12

12-001 (a-b) **(3)**
12-002

Technical Area 13

13-001
13-002 **(4)**
13-003 (a)
13-004

Technical Area 14

14-002 (a-f)
14-003
14-004 (b)
14-005 **(13)**
14-006
14-007
14-009
14-010

Technical Area 15

15-002
15-003
15-004 (a-c)
15-004 (f-g)
15-004 (i)
15-006 (a-d) **(45)**
15-007 (a-d)
15-008 (a-d)
15-009 (a-c)
15-009 (e-k)
15-010 (a-c)
15-011 (a-c)
15-012 (a-b)
15-014 (a-b)
15-014 (i-m)

(178)

Technical Area 16

16-001 (a-e)
16-003 (a-o)
16-004 (a-f)
16-005 (g)
16-005 (i)
16-005 (n-o)
16-006 (a-f)
16-007 (a) **(105)**
16-008 (a)
16-009 (a)
16-010 (a-n)
16-012 (a-z)
16-013
16-016 (a-c)
16-018
16-019
16-020
16-021 (a)
16-021 (c)
16-026 (b-e)
16-026 (h2)
16-026 (j2)
16-026 (v)
16-029 (a-g)
16-030 (h)
16-035
16-036

Technical Area 18

18-001 (a-c)
18-002 (a-b)
18-003 (a-h) **(19)**
18-004 (a-b)
18-005 (a)
18-007
18-012 (a-b)

Technical Area 19

19-001
19-002 **(3)**
19-003

Technical Area 20

20-001 (a-c)
20-002 (a-d) **(9)**
20-003 (a)
20-005

Technical Area 21

21-002 (a)
21-003
21-004 (b-c)
21-005
21-006 (a-e)
21-007
21-010 (a-h) **(83)**
21-011 (a-g)
21-011 (i-k)
21-012 (a-b)
21-013 (a-e)
21-014
21-015
21-016 (a-c)
21-017 (a-c)
21-018 (a-b)
21-021
21-022 (a-j)
21-023 (a-d)
21-024 (a-o)
21-026 (a-b)
21-027 (a-d)
21-029

Technical Area 22

22-010 (a)
22-010 (b)
22-011
22-012
22-014 (a-b) **(12)**
22-015 (a-e)
22-016

Technical Area 26

26-001
26-002 (a-b) **(4)**
26-003

Technical Area 27

27-001
27-002 **(3)**
27-003

Technical Area 31

31-001 **(1)**

(239)

Technical Area 32

32-001
32-002 (a-b) **(3)**

Technical Area 33

33-001 (a-e)
33-002 (a-e)
33-003 (a-b)
33-004 (a-k)
33-004 (m)
33-005 (a-c)
33-006 (a-b) **(52)**
33-007 (a-c)
33-008 (a-b)
33-009
33-010 (a-d)
33-010 (f-h)
33-011 (a)
33-011 (c-e)
33-012 (a)
33-013
33-014
33-015
33-016
33-017

Technical Area 35

35-002
35-003 (a-q)
35-004 (a-b)
35-004 (e)
35-004 (g-h)
35-006
35-008
35-009 (a-e)
35-010 (a-d)
35-011 (a)
35-013 (a-d) **(54)**
35-014 (a-b)
35-014 (e)
35-014 (g)
35-015 (a-b)
35-016 (a)
35-016 (c-d)
35-016 (i)
35-016 (k)
35-016 (m)
35-016 (o-q)

Technical Area 36

36-001
36-002
36-003 (a-c) **(9)**
36-004(d)
36-005
36-006
C-36-003

Technical Area 39

39-001 (a-b)
39-002 (a)
39-003 **(14)**
39-004 (a-e)
39-005
39-006 (a-b)
39-007 (a)
39-008

Technical Area 40

40-001 (a-c)
40-003 (a)
40-004 **(11)**
40-005
40-006 (a-c)
40-009
40-010

Technical Area 41

41-001 **(4)**
41-002 (a-c)

Technical Area 42

42-001 (a-c)
42-002 (b) **(5)**
42-003

Technical Area 43

43-001 (a) **(2)**
43-002

(154)

Technical Area 45

45-001
45-002 **(4)**
45-003
45-004

Technical Area 46

46-002
46-003 (a-h)
46-004 (a-h)
46-004 (a2-d2)
46-004 (m)
46-004 (p-z)
46-005 **(51)**
46-006 (a-d)
46-006 (f-g)
46-007
46-008 (a-g)
46-009 (a-b)
46-010 (d)

Technical Area 48

48-002 (a-b)
48-003
48-004 (a-c) **(13)**
48-005
48-007 (a-d)
48-007 (f)
48-010

Technical Area 49

49-001 (a-g)
49-003 **(11)**
49-004
49-005 (a)
49-006

Technical Area 50

50-001 (a)
50-002 (a-c)
50-004 (a-c) **(12)**
50-006 (a)
50-006 (c-d)
50-009
50-011 (a)

Technical Area 52

52-001 (a-d)
52-002 (a-f) **(10)**

Technical Area 53

53-001 (a-b)
53-002 (a-b)
53-005 **(12)**
53-006 (b-f)
53-007 (a-b)

Technical Area 54

54-001 (a)
54-001 (c)
54-004 (excluding Shaft No. 9)
54-005
54-006
54-007 (a-c) **(20)**
54-012 (b)
54-013 (a-b)
54-014 (b-d)
54-015 (h)
54-015 (k)
54-017
54-018
54-019
54-020

Technical Area 55

55-008 **(2)**
55-009

Technical Area 59

59-001 **(1)**

Technical Area 60

60-002
60-005 (a) **(5)**
60-006 (a)
60-007 (a-b)

(141)

Technical Area 61

61-002
61-004(a) **(5)**
61-005
61-006
61-007

Technical Area 63

63-001(a-b) **(2)**

Technical Area 69

69-001 **(1)**

Technical Area 73

73-001 (a-d)
73-002
73-004 (a-d) **(11)**
73-005
73-006

(19)

Total SWMUs in Table A = 892

TABLE B
Priority SWMUs*

SWMU No.	SWMU No.
0-005	16-019
1-001 (a-n)	16-020
1-002	16-021 (a)
1-003 (a)	18-001 (a)
2-005	18-003 (a-h)
2-008 (a)	21-006 (a-e)
3-010 (a)	21-010 (a-h)
3-012 (a-b)	21-011 (a-i)
3-013 (a)	21-012 (a)
3-015	21-014
3-020 (a)	21-015
3-029 (a)	21-016 (a)
5-005 (a)	21-017(a-c)
6-007 (a)	21-018 (a-b)
8-003 (a-c)	22-015 (c)
8-007	33-002 (a-c)
9-008 (a-b)	33-017
9-009	35-003 (a-q)
9-013	35-006
10-003 (a-f)	35-010 (a-d)
10-006	36-003 (a-c)
11-004 (a-e)	39-001 (a-b)
11-005 (a-b)	41-001
11-006 (a)	46-002
13-004	46-006 (a-d)
15-002	46-007
15-006 (a-d)	49-001 (a)
15-007 (a-d)	50-006 (a)
15-008 (a-d)	50-006 (c-d)
15-009 (a-b)	50-009
15-012 (a-g)	54-004 (except Shaft No. 9)
16-001 (b-e)	54-005
16-005 (n-o)	54-015 (h)
16-006 (a)	60-005 (a)
16-006 (c-f)	73-001 (a)
16-007	
16-008 (b)	
16-016	
16-018	**181 SWMUs**

* As RFI work progresses, EPA may identify more SWMUs to be added to the list to be addressed in the installation ~~workplans~~ work plans.

TABLE C
RFI Work Plan Schedule

RFI Work Plan due July 7, 1994:	**RFI Work Plan due July 7, 1995:**	**RFI Work Plan due May 21, 1995:**
Technical Area 16	Technical Area 16	Operable Unit 1114
16-005 (a-f)	16-016 (d-e)	3-002(a)
16-005 (h)	16-016 (g)	3-002(d)
16-005 (j-m)	16-025 (a2)	3-009(c)
16-006 (g-i)	16-025 (d2)	3-009(i)
16-015 ~~(a,b)~~ (a, b)	16-025 (e2)	3-009(j)
16-017	16-025 (f2)	3-011
16-024(e)	16-025 (h2)	3-019
16-025 (a)	16-026 (a-a2)	3-021
16-025 (b-b2)	16-026 (b2)	3-024
16-025 (c-c2)	16-026 (c2)	3-025(a-b)
16-025 (d-f)	16-026 (d2)	3-026(b-c)
16-025 (g-g2)	16-026 (e2)	3-029
16-025 (h-z)	16-026 (f-f2)	3-031
16-026 (i2)	16-026 (g-g2)	3-032
16-026 (m-q)	16-026 (h-j)	3-034(a-b)
16-026 (s)	16-026 (k-k2)	3-043(c)
16-026 (w)	16-026 (l)	3-045(a-i)
16-028 (a)	16-026 (r)	3-046
16-029 (a2-h2)	16-026 (t-u)	3-049(a-e)
16-029 (k-z)	16-026 (x-z)	3-050(a)
16-031 (c-d)	16-028 (b-e)	3-050(d-g)
16-031 (g)	16-029 (h-j)	3-052(a)
16-032 (a)	16-030 (a-c)	3-052(c)
16-032 (c-e)	16-030 (e-f)	3-052(e-f)
16-034 (a-g)	16-031 (a-b)	3-054(a-e)
16-034 (l-p)	16-031 (e-f)	3-055(a)
C-16-025	16-031 (h)	3-055(c-d)
C-16-026	16-034 (h-k)	3-056(d)
		3-056(l-n)
		3-059
***Total SWMUs = 101**	**Total SWMUs = 51**	**Total SWMUs = 56**

* 20 additional SWMUs were added
after ~~workplan~~
work plan review

TABLE D
Staggered Schedule for Group 3 RFI ~~Workplans~~ Work Plans

Operable Unit Number	Proposed Submittal Date
1093	05/14/93
1098	06/04/93
1130	06/04/93
1132	06/18/93
1114	07/02/93
1086	07/02/93
1082	07/16/93
1157	07/16/93
1140	08/20/93
1111	08/27/93

4. RFI Work Plan and Reports (Submittal and Preparation)

After the Permittee submits the RFI Work Plan, the Administrative Authority will approve, disapprove, or modify the plan. If the Administrative Authority approves the plan, the Permittee shall immediately initiate implementation of the plan according to the schedule contained therein. Approved ~~workplans~~ work plans are incorporated into this permit.

In the event of disapproval (in whole or in part) of the plan, the Administrative Authority will specify any deficiencies in writing. The Permittee shall modify the plan to correct deficiencies within the time frame required by the Administrative Authority (usually 30 days). If additional time is required, the Permittee shall provide a written request for time extension, with justification for the extension. The modified plan shall be submitted in writing to the Administrative Authority for review. Should the Permittee take exception to all or part of the disapproval, the Permittee shall submit to the Administrative Authority a written statement of the grounds for the exception within 15 days of receipt of the disapproval by the Administrative Authority.

If disagreements cannot be resolved, the Administrative Authority shall make further modifications as required. If the Administrative Authority modifies the plan, this modified plan becomes the approved RFI Work Plan. The Permittee shall immediately initiate implementation of the approved RFI Work Plan according to the schedule contained therein.

The Permittee shall prepare the RFI Work Plan and undertake the facility investigation in accordance with the following:

a. Development of the RFI Work Plan and reporting of data shall be consistent with the RCRA Facility Investigation Guidance Document (EPA OSWER Directive 9502.00-6c) or the equivalent thereof;

b. EPA and the NMED reserve the right to split samples with the Permittee. The Permittee shall notify EPA and the NMED at least 10 days prior to any sampling activity which has been identified from the field sampling plan by EPA or NMED for split sampling;

c. When developing groundwater related investigations, the permittee shall be consistent with the RCRA Groundwater Monitoring Technical Enforcement Guidance Document (EPA OSWER Directive 9950-1, September 1986) or the equivalent thereof to determine methods and materials that are acceptable to EPA; and

d. Any schedule deviations from the approved RFI Work Plan which are necessary during implementation of the facility investigation shall be fully documented and described in the monthly reports and in the draft RFI report. Technical deviations from the approved RFI ~~Workplan~~ Work Plan shall be fully documented and described in the draft RFI report.

The Permittee shall submit a draft RFI report and Summary Report to the Administrative Authority in accordance with the schedule in the RFI Work Plan. The draft report shall include all the results from the facility investigation described in Condition Q., Task III. The Summary Report shall describe more briefly the procedures, methods, and results from the facility investigation described in Scope of Work, Task III. An extension of the time required to submit the draft RFI report may be obtained only through the Permittee's written request and the written approval of the Administrative Authority.

After the Permittee submits the RFI report, the Administrative Authority will either approve or disapprove the adequacy of the report. If the Administrative Authority disapproves the report, the Administrative Authority shall specify the deficiencies and the Permittee shall have thirty (30) days to submit a modified report. If this report is not approved, the Administrative Authority may make further modifications as required. If the Administrative Authority modifies the report, this modified report becomes the approved RFI report.

5. RFI Work Plan, Canyon Systems

The Permittee shall submit one or more Task/Site ~~Workplans~~ Work Plans for studies to evaluate the 15 major drainage areas or Canyon systems at the facility. These studies must address each system as an integrated unit and evaluate them for potential impacts of contaminants from SWMUs. The plans must address the existence of contamination and the potential for movement or transport to or within Canyon watersheds, and interactions with the alluvial aquifers and the main aquifer. The studies shall evaluate the potential for ~~offsite~~ off-site exposure through these pathways including the ground water and possible impacts on the Rio Grande.

J. INTERIM MEASURES

1. If during the course of any activity initiated under this Corrective Action Schedule of Compliance, the Administrative Authority determines that a release or potential release of hazardous constituents from a SWMU poses a threat to human health and the environment, the Administrative Authority may specify interim measures. The Administrative Authority may determine the specific measure, including potential permit modifications and the schedule for implementing the required measures. The Administrative Authority may require submission of an interim measures ~~workplan~~ work plan for approval. The Administrative Authority shall notify the Permittee in writing of the requirement to perform such interim measures. The Administrative Authority shall modify the Corrective Action Schedule of Compliance either according to procedures in this Module, or according to the permit modification procedures under 40 CFR 270.41, to incorporate such interim measures into the Permit. If, for institutional reasons not related to permit work, i.e. routine construction, an interim measure is required, the permittee will submit appropriate documentation to the Administrative Authority for approval.

2. The following factors may be considered by the Administrative Authority in determining the need for interim measures:

   a. Time required to develop and implement a final remedy;

b. Actual and potential exposure to human and environmental receptors;

c. Actual and potential contamination of drinking water supplies and sensitive ecosystems;

d. The potential for further degradation of the medium absent interim measures;

e. Presence of hazardous waste in containers that may pose a threat of release;

f. Presence and concentration of hazardous waste including hazardous constituents in soil that have the potential to migrate to ground water or surface water;

g. Weather conditions that may affect the current levels of contamination;

h. Risks of fire, explosion, or accident; and

i. Other situations that may pose threats to human health and the environment.

K. DETERMINATION OF NO FURTHER ACTION

1. Based on the results of the RFI and other relevant information, the Permittee may submit an application to the Administrative Authority for a Class III permit modification under 40 CFR 270.42(c) to terminate the RFI/CMS process for a specific unit. This permit modification application must contain information demonstrating that there are no releases of hazardous wastes including hazardous constituents from SWMUs at the facility that pose a threat to human health and the environment, as well as information required in 40 CFR 270.42.(c), which incorporates by reference 40 CFR 270.13 through 270.21, 270.62, and 260.63.

   If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, including comments received during the sixty (60) day public comment period required for Class III permit modifications, the Administrative Authority determines that releases or suspected releases which were investigated either are non-existent or do not pose a threat to human health and the environment, the Administrative Authority will grant the requested modification.

2. A determination of no further action shall not preclude the Administrative Authority from requiring continued or periodic monitoring of air, soil, ground water, or surface water, when site-specific circumstances indicate that release of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment.

3. A determination of no further action shall not preclude the Administrative Authority from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, the Administrative Authority shall initiate either a modification to the Corrective Action Schedule of compliance according to procedures in this Module, or a major permit modification according to 40 CFR 270.41, to rescind the determination of no further action.

L. CORRECTIVE ACTION MEASURES STUDY PLAN

1. If the Administrative Authority has reason to believe that a SWMU has released concentrations of hazardous constituents, or if the Administrative Authority determines that contaminants present a threat to human health and the environment given site-specific exposure conditions, or may present a threat over the lifetime of wastes, the Administrative Authority may require a Corrective Measures Study (CMS) and shall notify the Permittee in writing. The notification may also specify remedial alternatives and pilot or bench scale studies to be evaluated by the Permittee during the CMS.

2. The Permittee shall submit a draft CMS Plan to the Administrative Authority within ninety (90) calendar days from notification of the requirement to conduct a CMS. The Scope of Work for a Corrective Measure Study (CMS) is in Section R.

   The CMS Plan shall provide the following information:

   a. A description of the general approach to investigation and potential remedies;

   b. A definition of the overall objectives of the study;

   c. The specific plans for evaluating remedies to ensure compliance with remedy standards;

   d. The schedules for conducting the study;

   e. The proposed format for the presentation of information; and

   f. Any pilot or bench scale studies necessary.

3. After the Permittee submits the draft CMS plan, the Administrative Authority will either approve or disapprove the plan. If the plan is not approved, the Administrative Authority will notify the Permittee in writing of the plan's deficiencies and specify a due date for submittal of the revised plan. If this plan is not approved, the Administrative Authority will revise the Plan and notify the Permittee of the revisions. This Administrative Authority-revised Plan becomes the approved Plan.

M. CORRECTIVE MEASURES STUDY IMPLEMENTATION

No later than fifteen (15) calendar days after the Permittee has received written approval from the Regional Administrator for the CMS Plan, the Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan. The CMS shall be conducted in accordance with the approved Plan.

N. CORRECTIVE MEASURES STUDY FINAL REPORT

1. Within sixty (60) calendar days after the completion of the CMS, the Permittee shall submit a CMS Final Report. The CMS Final Report shall summarize the results of the investigations for each remedy studied and of any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The final report must contain adequate information to support the Regional Administrator in the remedy selection decision making process.

2. If the Regional Administrator determines that the CMS Final Report does not fully satisfy the information requirements specified under Permit condition N.1., the Regional Administrator may disapprove the CMS Final Report. If the Regional Administrator disapproves the Final Report, the Regional Administrator will notify the Permittee in writing of deficiencies in the Report and specify a due date for submittal of a revised Final Report [e.g., thirty (30) days after notification].

3. Based on preliminary results and the final CMS report, the Administrative Authority may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

O. MODIFICATION OF THIS MODULE

1. If at any time the Administrative Authority determines that modification of the Corrective Action Schedule of Compliance is necessary, he or she may initiate a modification to the Schedule of Compliance according to the procedures of this Section. If the Administrative Authority initiates a modification, he or she will:

   a. Notify the Permittee in writing of the proposed modification and the date by which comments on the proposed modification must be received;

   b. Publish a notice of the proposed modification in a locally distributed newspaper, mail a notice to all persons on the facility mailing list maintained according to 40 CFR 124.10 (c)(l)(ix), and place a notice in the facility's information repository (i.e., a central source of all pertinent documents concerning the remedial action, usually maintained at the facility or some other public place, such as a public library, that is accessible to the public) if one is required; and

      (i) If the Administrative Authority receives no written comment on the proposed modification, the modification will become effective five (5) calendar days after the close of the comment period.

      (ii) If the Administrative Authority receives written comment on the proposed modification, the Administrative Authority will make a final determination concerning the modification after the end of the comment period.

c. Notify the Permittee in writing of the final decision.

(i) If no written comment was received, the Administrative Authority will notify individuals on the facility mailing list in writing that the modification has become effective and will place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

(ii) If written comment was received, the Administrative Authority will provide notice of the final modification decision in a locally distributed newspaper and place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

2. Modifications that are initiated and finalized by the Administrative Authority according to this process shall not be subject to administrative appeal.

3. Modifications to the Corrective Action Schedule of Compliance do not constitute a reissuance of the Permit.

P. FACILITY SUBMISSION SUMMARY

Below is a summary of the planned reporting requirements pursuant to this Schedule to Compliance:

Facility Submission Requirements	Due Date
Written notification of newly-identified SWMUs	fifteen (15) calendar days after discovery
Written notification of newly-discovered releases	fifteen (15) calendar days after discovery
Verbal notification of newly-discovered releases	24 hours after release discovery
Monthly Management Reports	monthly no later than sixty (60) calendar days after effective date of permit
Task I Preliminary Report Description of Current Conditions Installation ~~Workplan~~ Work Plan	one hundred eighty (180) calendar days from effective date of permit
SWMU Assessment Plan for newly-identified SWMUs	ninety (90) calendar days after receipt of request

Facility Submission Requirements	Due Date
Revised SWMU Assessment Plan	as determined
SWMU Assessment Report	sixty (60) calendar days after completion of implementation of SWMU Assessment Plan
Task II Installation RFI ~~Workplan~~ Work Plan for SWMU(s)	one hundred eighty (180) calendar days after the effective date of the permit
Task/Site ~~Workplans~~ Work Plans	as specified in installation RFI ~~Workplan~~ Work Plan
RFI Preliminary Report	according to schedule in RFI ~~Workplan~~ Work Plan
Revised RFI ~~Workplan~~ Work Plan	as determined by Administrative Authority usually within 30 days of receipt of NOD
RFI Report and Summary Report	sixty (60) calendar days after completion of RFI
Technological Progress Reports	quarterly no later than one hundred eighty (180) days from effective date of permit
Revised RFI Report and Summary Report	thirty (30) calendar days after notification of deficiency
Interim Measures Plan for interim	thirty (30) calendar days after notification
Revised Interim Measure Plan	as determined
CMS Plan	ninety (90) calendar days after notification of the requirement to perform a CMS
Revised CMS Plan	as determined
CMS Report	sixty (60) calendar days after completion of CMS
Revised CMS Report	thirty (30) calendar days after notification of deficiency

Q. SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI) AT LOS ALAMOS NATIONAL LABORATORY

Purpose

The purpose of this RCRA Facility Investigation is to determine the nature and extent of releases of hazardous waste or hazardous constituents from solid waste management units. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation (RFI) at Los Alamos National Laboratory.

If the Permittee believes that certain requirements of the scope of work are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided. The scope of work should be modified as necessary to require only that information necessary to complete the RCRA RFI for each individual task. The EPA will review the scope of work to determine if specific requirements are applicable.

Scope

The RFI consists of five (5) tasks. Those tasks, and the ER program documents that must be equivalent to the RFI documents/activities are listed on the following page. The Permittee shall prepare a single installation-wide work plan, which shall be updated annually, and task-specific RI/FS for each task. The installation-wide work plan together with the RI/FS documents for a task must complete the RFI equivalent document set for a task. The installation-wide work plan shall contain programmatic operating procedures, tabular summaries of the potential release sites, prioritization of the sites/tasks, and a work schedule by task (including a current year work plan). The task-specific RI/FS documents/activities shall be prepared as tasks are implemented. The detailed outlines for the task-specific RI/FS documents shall be provided in the installation-wide work plan.

TASK I: Preliminary Report: Description of Current Conditions

The Permittee shall submit to the Administrative Authority a ~~preliminary~~ Preliminary Report providing the background information pertinent to the facility, contamination and any type of ongoing corrective action as set forth below. This report is limited to SWMUs not identified in the Part B permit application or to recent information not addressed in the RCRA Facility Assessment, or in the LANL December 1988 SWMU report.

A. Facility Background

The Permittee report shall summarize the regional location, pertinent boundary features, general facility physiography, hydrogeology, and historical use of the facility for the treatment, storage or disposal of solid and hazardous waste. The Permittee's report shall include:

1. Map(s) depicting the following:

    a. General geographic location;

b. Property lines, with the owners of all adjacent property clearly indicated;

c. Topography using available scales, waterways, all wetlands greater that 1 acre, floodplains, water features, and drainage patterns;

d. All solid waste management units;

e. All known past solid or hazardous waste treatment, storage or disposal areas regardless of whether they were active on November 19, 1980;

f. Surrounding land uses (residential, commercial, agricultural, recreational); and

g. The location of all production and groundwater monitoring wells. These wells shall be clearly labeled and ground and top of casing elevations included (these elevations may be included as an attachment).

All maps shall be consistent with the requirements set forth in 40 CFR §270.14 and be of sufficient detail and accuracy to locate and report all current and future work performed at the site;

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility;

3. Approximate dates or periods of past waste spills, identification of the materials spilled, the amount spilled, the location where spilled, and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response.

B. Nature and Extent of Contamination

The Permittee shall include in the ~~preliminary~~ Preliminary Report the existing information on the nature and extent of contamination.

1. The Permittee's report shall summarize all possible source areas of contamination. This, at a minimum, should include all solid waste management units. For each area, the Permittee shall identify the following:

a. Location of unit/area (which shall be depicted on a facility map);

b. Quantities of solid and hazardous wastes;

c. Hazardous waste, radiochemical and hazardous constituents, to the extent known; and

d. Identification of areas where additional information is necessary.

2. The Permittee shall prepare an assessment and description of the existing degree and extent of contamination. This should include:

   a. Available monitoring data and qualitative information on locations and levels of contamination at the facility;

   b. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and

   c. The potential impact(s) on human health and the environment, including demography, groundwater and surface-water use, and land use.

C. Summary Identification of Other Permits

A summary of past and present permits requested, received, and/or denied for all environmental media and enforcement actions associated with them. This must include State and Federal permits.

D. Implementation of Interim Measures

The Permittee shall document and report on all interim measures which were or are being undertaken at the facility other than those specified in the permit. This shall include:

1. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction and monitoring; and

4. Schedule for progress reports.

TASK II: RFI ~~Workplan~~ Work Plan Requirements

The Permittee shall prepare a RCRA Facility Investigation (RFI) ~~Workplan~~ Work Plan. This RFI ~~Workplan~~ Work Plan shall include the development of several plans, which shall be prepared concurrently. During the RFI, it may be necessary to revise the RFI ~~Workplan~~ Work Plan to increase or decrease the detail of information collected to accommodate the facility specific situation. The RFI ~~Workplan~~ Work Plan shall include the following:

A. Data Collection Quality Assurance Plan

The Permittee shall prepare a plan to document all monitoring procedures: sampling, field measurements and sample analysis performed at the facility during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses; and

b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data.

2. Sampling and Field Measurements

The Sampling Field Measurements Section of the Data Collection Quality Assurance Plan shall at least discuss:

a. Selecting appropriate sampling and field measurements locations, depths, etc.;

b. Providing a statistically sufficient number of sampling and field measurement sites;

c. Determining conditions under which sampling or field measurements should be conducted;

d. Determining which parameters are to be measured and where;

e. Selecting the frequency of sampling and length of sampling period;

f. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

g. Measures to be taken to prevent contamination of sampling or field measurements equipment and cross contamination between sampling points;

h. Documenting field sampling operations and procedures;

i. Selecting appropriate sample containers;

j. Sample preservation; and

k. Chain-of-custody.

3. Sample Analysis

a. Chain-of-custody procedures;

b. Sample storage procedures and holding times;

c. Sample preparation methods;

d. Analytical procedures;

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting; and

g. Internal quality control checks, laboratory performance and systems audits and frequency.

B. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation, such as:

1. Data Record;

2. Tabular Displays; and

3. Graphical Displays.

C. Health and Safety Plan

The Permittee shall prepare a facility Health and Safety Plan.

1. Major elements of the Health and Safety Plan shall include:

a. Facility description including availability of resources such as roads, water supply, electricity and telephone service;

b. Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

c. List key personnel and alternatives responsible for site safety, responses operations, and for protection of public health;

d. Delineate work area;

e. Describe levels of protection to be worn by personnel in work area;

f. Establish procedures to control site access;

g. Describe decontamination procedures for personnel and equipment;

h. Establish site emergency procedures;

i. Address emergency medical care for injuries and toxicological problems;

j. Describe requirements for an environmental field monitoring program;

k. Specify any routine and special training required for responders; and

l. Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

a. NIOSH Occupation Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

b. EPA Order 1440.1 - Respiratory protection;

c. EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

d. Approved Facility Contingency Plan;

e. EPA Operating Safety Guide (1984);

f. OSHA regulations particularly in 29 CFR 1910 and 1926;

g. State and local regulations; and

h. Other EPA guidance as provided.

D. Community Relations Plan

The Permittee shall prepare a Community Relations Plan (CRP) as part of the RFI ~~Workplan~~ Work Plan which allows for public participation in the RFI process. The CRP will include:

1. Establishing an active mailing list of interested parties (to be updated annually), including those on the official facility mailing list who wish to be on LANL's list;

2. Informal meetings, including briefings and workshops as appropriate, with the public and local officials before and during the RFI process, which includes activities associated with the RFI ~~Workplan~~ Work Plan and RFI report;

3. News releases, fact sheets, approved RFI ~~Workplans~~ Work Plans, RFI final reports, Special Permit Conditions Reports and publicly available quarterly progress reports that explain the progress and conclusions of the RFI;

4. Creation of a public information repository and reading room;

5. Updates of materials in the information repository and public reading room;

6. Public tours and briefings to inform and to listen informally to public concerns and answer individual questions;

7. Quarterly technical progress reports for the Administrative Authority; and

8. Procedures for immediate notification of the San ~~Idelfonso~~ Ildefonso Pueblo or other affected parties in case of a newly discovered off-site release which could impact them.

E. Project Management Plan

The LANL Installation RI/FS ~~Workplan~~ Work Plan shall contain a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and key projects. The Project Management Plan shall include a description of qualifications of key project personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI. The Task specific ~~Workplan~~ Work Plan must document any deviations from the Installation ~~Workplan~~ Work Plan.

TASK III: Facility Investigation

The Permittee shall conduct those investigations of SWMUs previously identified with known or suspected releases or potential releases for the lifetime of the wastes involved, of contamination as necessary to protect human health and the environment to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of contamination (Contamination Characterization); and identify actual or potential receptors.

Investigations should result in data of adequate technical quality to support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study, when necessary.

The facility investigation activities shall when conducted follow the plans set forth in Task II. All sampling and analyses shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

The Permittee shall collect information to supplement and verify existing information on the environmental setting at the facility. The Permittee shall characterize the following:

1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the facility;

b. An analysis of any topographic features that might influence the groundwater flow system. (Note: Stereo-graphic analysis of aerial photographs may aid in this analysis);

c. An analysis of fractures within the tuff, addressing tectonic trend fractures versus cooling fractures;

d. Based on field data, tests, (gamma and neutron logging of existing and new wells, piezometers and borings) and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (e.g., the aquifers and any intervening saturated and unsaturated units);

e. Based on field studies and cores, structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying;:

(i) Unconsolidated sand and gravel deposits,

(ii) Zones of fracturing or channeling inconsolidated or unconsolidated deposits, and

(iii) Zones of high permeability or low permeability that might direct and restrict the flow of contaminants.

f. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring;

g. A description of manmade influences that may affect the hydrogeology of the site; and

h. Analysis of available geophysical information and remote sensing information such as infrared photography and Landsat imagery.

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the ~~Vicinity~~ vicinity of the contaminant release(s). Trace element geochemistry should be investigated as a means of differentiating units within the tuff. Such characterization shall include, but not be limited to, the following information:

a. Surface soil distribution;

b. Soil profile, including ASTM classification of soils;

c. Transects of soil stratigraphy;

d. Saturated hydraulic conductivity;

e. Porosity;

f. Cation exchange capacity (CEC);

g. Soil ~~Ph~~ pH;

i. Particle size distribution;

j. Depth of water table;

k. Moisture content;

l. Effect of stratification on unsaturated flow;

m. Infiltration;

n. Evapotranspiration;

o. Residual concentration of contaminants in soil;

p. Mineral and metal content;

q. Trace element geochemistry as a means of differentiating units within the tuff; and

r. Water balance scenarios.

B. Source Characterization

The Permittee shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, including: type; quantity; physical form; disposition (containment or nature of deposits); and the facility characteristics affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics

   The RFI Work Plan shall propose the Task Site specific maps with an appropriate scale and the following features; wetlands, floodplains, water features, drainage patterns, springs, faults, gravel deposits and alluvium.

   a. Location of unit/disposal area;

   b. Type of unit/disposal area;

   c. Design features;

   d. Operating practices (past and present);

   e. Period of operation;

   f. Age of unit/disposal area;

   g. General physical conditions; and

   h. Method used to close the unit/disposal area.

2. Waste Characteristics

   a. Type of waste placed in unit;

   b. Physical and chemical characteristics; and

   c. Migration and dispersal characteristics of the waste.

The Permittee shall document the procedures used in making the above determinations.

C. Contamination Characteristics

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination when necessary to characterize contamination from a SWMU. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individual(s) performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Groundwater Contamination

   The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination at the facility. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;

b. The horizontal and vertical direction of contamination movement;

c. The velocity of contaminant movement;

d. The horizontal and vertical concentration profiles of any 40 CFR 264, Appendix IX constituents and radiochemical constituents in the plume(s);

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of contaminant and soil chemical properties within the contaminant source area and plume migration and transformation;

c. Specific contaminant concentrations;

d. The velocity and direction of contaminant movement; and

e. An extrapolation of future contaminant movement that includes worst case scenarios over the life of the wastes involved.

The Permittee shall document the procedures used in making the above determinations.

3. Surface Water Contamination

The Permittee shall ~~Conduct~~ conduct a surface water investigation to characterize contamination in surface water bodies resulting from contaminant releases at the facility. The investigation shall include the following:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plumes originating from the facility, and the extent of contamination in the underlying sediments;

b. The horizontal and vertical direction and velocity of contaminant movement;

c. An evaluation of the physical, biological, chemical, and radiochemical factors influencing contaminant movement;

d. An extrapolation of future contaminant movement; and

e. A description of the chemistry and radiochemistry of the contaminated surface waters and sediments. This includes determining the ~~Ph~~ pH, total dissolved solids, specific contaminant concentrations, etc.

The Permittee shall document the procedures used in making the above determinations.

4. Air Contamination

The Permittee shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere.

This investigation shall provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release.

c. The chemical, radiochemical, and physical composition of the contaminants released, including horizontal and vertical concentration profiles; and

d. Possibility of future airborne releases.

5. Subsurface Gas

The Permittee shall provide information characterizing the nature, rate and extent of releases of reactive gases from the units. Such information shall include, but not be limited to: provisions for monitoring subsurface gases released from the unit; and an assessment of the potential for these releases to have a threat to human health and environment. The Permittee shall document the procedures used in making the above determination.

D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical and radiochemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also be obtained.

TASK IV: Investigative Analysis

The Permittee shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study, if one is required.

The Permittee shall analyze all facility investigation data outlined in Task III and prepare a report on the type and extent of contamination at the facility including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to the background levels indicative for the area.

The Permittee shall identify all relevant and applicable standards for the protection of human health and the environment (e.g. National Ambient Air ~~quality~~ Quality Standards, Federally-approved state water quality standards, Groundwater protection standards).

TASK V: Reports

A. Preliminary and ~~Workplan~~ Work Plan

The Permittee shall submit to the Administrative Authority the Preliminary Report (Task I) and the RFI ~~Workplan~~ Work Plan (Task II) as described in the Permit.

B. Progress

Within 60 days of the effective date of this permit, the Permittee shall provide the Administrative Authority with signed, monthly management status reports containing:

1. A description and estimate of the percentage of the RFI completed;
2. Summaries of contacts pertaining to corrective action with representatives of the local community, public interest groups or State government during the reporting period;
3. Summaries of problems or potential problems encountered during the reporting period;
4. Actions being taken to rectify problems;
5. Changes in key project personnel during the reporting period; and
6. Projected work for the next reporting period.

C. Technical Quarterly Progress Reports

Beginning February 15, 1990, the Permittee shall submit a technical progress report for the previous quarter, which shall at a minimum, summarize the work performed, and supply the results of sampling and analysis.

D. Draft and Final

RCRA Facility Investigation Report and Summary

1. Within sixty (60) calendar days after the completion of either phase of the RFI, the Permittee shall submit an RFI Report and a Summary Report. The RFI Report shall describe the procedures, methods, and results of all investigations of SWMUs and their releases, including information on the type and extent of contamination at the facility, sources and migration pathways, and actual or potential receptors. The Phase 2 RFI Report shall present all information gathered under the approved RFI Work Plan. The Phase 2 Report must contain adequate information to support further corrective action decisions at the facility. The Summary shall describe more briefly the procedures, methods, and results from the facility investigation described in the Scope of Work for RFI, Task III.

2. After the Permittee submits either phase of the RFI Report and a Summary, the Administrative Authority shall either approve or disapprove the reports in writing.

   If the Administrative Authority approved the RFI Report and Summary, the Permittee shall mail the approved Summary Report to all individuals on the facility mailing list established pursuant to 40 CFR 124.10(c) (l)(ix), within fifteen (15) calendar days of receipt of approval.

   If the Administrative Authority determines the RFI Final Report and Summary do not fully detail the objectives stated under Permit Condition Q, the Administrative Authority may disapprove the RFI Final Report and Summary. If the Administrative Authority disapproves the Report, the Administrative Authority shall notify the Permittee in writing of the Report's deficiencies and specify a due date for submittal of a revised Final Report and Summary. Once approved, the Summary shall be mailed to all individuals on the facility mailing list.

   Two hard copies of all reports, including the Task I report, Task II ~~workplan~~ work plan and both the Draft and Final RFI Reports (Task III-IV) shall be provided by the permittee to the Administrative Authority.

RFI Submission Summary

A summary of the information reporting requirements contained in the RFI Scope of Work is presented below:

Facility Submission	Due Date
LANL Installation RI/FS ~~Workplan~~ Work Plan	180 days*
LANL Task/Site RI/FS Documents**	
Monthly Management Status Reports	Monthly
Technical Progress Reports	Quarterly

* Dates are calculated from the effective date of this permit unless otherwise specified.

** Dates will be as specified in the LANL Installation RI/FS ~~Workplan~~ Work Plan

R. SCOPE OF WORK FOR A RCRA CORRECTIVE MEASURE STUDY (CMS) AT LOS ALAMOS NATIONAL LABORATORY

Purpose

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Los Alamos National Laboratory. The Permittee will furnish the personnel, materials, and services necessary to prepare the CMS, except as otherwise specified.

If the Permittee believes that certain requirements of the scope of work are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided. This scope of work should be modified as necessary to require only that information necessary to complete the RCRA CMS.

Scope

The CMS consists of four tasks, which are listed below. ~~Those tasks, and the ER Program documents/activities that are equivalent to the CMS documents/ activities are listed on the following page.~~

TASK VI: Identification and Development of the Corrective Measure Alternative or Alternatives

A. Description of Current Situation
B. Establishment of Corrective Action Objectives
C. Laboratory and Bench-Scale Study
D. Screening of Corrective Measures Technologies
E. Identification of the Corrective Measure Alternative or Alternatives

TASK VII: Evaluation of the Corrective Measure Alternative(s)

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimate

TASK VIII: Justification and Recommendation of the Corrective Measure or Measures

A. Technical
B. Human Health
C. Environmental

TASK IX: Reports

A. Progress
B. Draft
C. Final

The permittee shall prepare a single installation-wide work plan, which shall be updated annually, and task specific RI/FS documents for each task. The installation-wide work plan shall contain programmatic operating procedures, tabular summaries of the potential release sites, prioritization of the site/tasks, and a work schedule by task (including a current year work plan). The task specific RI/FS documents/activities shall be prepared as tasks are implemented. The detailed outlines for the task specific RI/FS documents shall be provided in the installation-wide work plan.

TASK VI: Identification and Development of the Corrective Action Alternative or Alternatives

Based on the results of the RCRA Facility Investigation (RFI) and consideration of the identified Preliminary Corrective Measure Technologies (Task I) the Permittee shall identify, screen, and develop the alternative(s) for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RFI report. The Permittee shall provide an update to information presented in Task I of the RFI to the Administrative Authority regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the Administrative Authority, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning groundwater releases from solid waste management units must be consistent with, and as stringent as, those required under 40 CFR 264.100.

C. Laboratory and Bench-Scale Study

When a new technology is being proposed or similar waste streams have not routinely been treated or disposed using the technology the Permittee shall conduct laboratory and/or bench-scale studies to determine the applicability of a corrective measure technology or technologies to the facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

D. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and reassess the technologies specified in Task II and identify any additional technologies which are applicable to the facility. The Permittee shall screen the preliminary corrective measure technologies identified in Task II of the RFI and any supplemental technologies to eliminate those that may prove not feasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

The level of technology development, performance record, and inherent construction, operation and maintenance problems shall be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

E. Identification of the Corrective Measure Alternatives

The Permittee shall develop the corrective measure alternatives based on the corrective measure objectives and analysis of Preliminary Corrective Measure Technologies, as presented in Task I of the RFI as supplemented following the preparation of the RFI report. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of options that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies, identified in Task I, as supplemented in the development of the alternative.

TASK VII: Evaluation of the Corrective Measure Alternative or Alternatives

The Permittee shall describe each corrective measure alternative that passed the initial screening in Task VI and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates for each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

(i) Effectiveness shall be evaluated in terms of the ability to perform intended functions such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially

impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

(ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

(i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

(ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation ~~(constructibility)~~ (constructability) and the total time required to achieve a given level of response:

(i) ~~Constructibility~~ Constructability is determined by conditions both internal and external to the facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (e.g., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities;

(ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider include fire, explosion, and exposure to hazardous substances.

2. Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse impacts.

3. Human Health

The Permittee shall assess each alternative in terms of the extent which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or regulations acceptable to the Administrative Authority.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include capital, and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

a. Direct capital costs include:

(i) Construction costs: Cost of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure alternative.

(ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is completed;

(iii) Land and site development costs: Expenses associated with purchase of land and development of existing property; and

(iv) Building and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

(i) Engineering expenses: Costs of administration, design construction supervision, drafting and testing of corrective measure alternatives;

(ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

(iii) Start-up and shakedown costs: Cost incurred during corrective measure start-up; and

(iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operation;

b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues generated during operation;

f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (l) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

TASK VIII: Justification and Recommendations of the Corrective Measure or Measures

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing U.S. EPA criteria, standards, or regulations for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact
(or greatest improvement) on the environment over the shortest period of time will be favored.

TASK IX: Reports

The Permittee shall prepare a Corrective Measure Study Report presenting the results of Tasks VII through IX recommending a corrective measure alternative. Two (2) copies and one compatible disk copy of the draft and final reports shall be provided to the Administrative Authority by the Permittee.

A. Progress

The Permittee shall at a minimum provide the Administrative Authority with signed monthly management status reports containing:

1. A description and estimate of the percentage of the CMS completed;
2. Summaries of contacts relevant to corrective action with representatives of the local community, public interest groups or State government during the reporting period;
3. Summaries of problems or potential problems relevant to corrective action encountered during the reporting period;
4. Actions being taken to rectify problems;
5. Changes in key project personnel during the reporting period; and
6. Projected work for the next reporting period.

B. Draft

The Report shall at a minimum include:

1. A summary of the corrective measure or measures and rationale:
   a. Description of the corrective measure or measures and rationale for selection;
   b. Performance expectations;
   c. Preliminary design criteria and rationale;
   d. General operation and maintenance requirements; and
   e. Long-term monitoring requirements.
2. Design and implementation precautions:
   a. Special technical problems;
   b. Additional engineering data required;

c. Permits and regulatory requirements;

d. Access, easements, right-of-way;

e. Health and safety requirements; and

f. Community relations activities.

3. Cost Estimates and Schedules:

a. Capital cost estimate;

b. Operation and maintenance cost estimate; and

c. Project schedule (design, construction, operation).

C. Technical Quarterly Progress Reports

The Permittee shall submit quarterly progress reports which summarize environmental data collected during the previous quarter.

D. Final

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from the Administrative Authority on the Draft Corrective Measure Study Report.

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
A	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
A	1 of 27	A.1.	No	Change "impleemnted" to "implemented".	1	A.2
A	1 of 27	A.1.	No	Change "controled" to "controlled".	1	A.2
A	1 of 27	A.2.	No	Change "TPYES" to "TYPES".	1	A.2
A	1 of 27	A.2.2.	No	Change "MST-7" to "MST-6".	1	A.1
A	1 of 27	A.2.2.	No	Change "Polymers and Coatings Group," to "Metallurgy Group".	1	A.1
A	2 of 27	A.2.2.	No	Delete "of the MEC 10 Electronic Manufacturing and Technician Resources Group,".	1	A.1
A	2 of 27	A.2.2.	No	Change "M-7" to "DX-10".	1	A.1
A	2 of 27	A.2.3.	No	Change "The Isotope and Structural Chemistry Group, INC-4, generates" to "Research Groups generate".	1	A.1
A	2 of 27	A.2.4.	No	Delete second occurrence of "when generated".	1	A.2
A	2 of 27	A.2.5.	No	Change "Dynamics Testing (M)" to "Dynamic Experimentation (DX)".	1	A.1
A	2 of 27	A.2.5.	No	Change "Design Engineering (WX)" to "Engineering Sciences and Applications (ESA)".	1	A.1
A	3 of 27	A.2.6.	No	Change "Engineering" to "Facilities, Security and Safeguards".	1	A.1
A	3 of 27	A.2.6.	Yes[1]	Change "D001 and D016" to "D012 through D014".	1	A.1
A	3 of 27	A.2.6.	Yes[2]	Change "(e.g. D001, D008, and F003)" to "(e.g. D001 and D008)".	1	A.1
A	3 of 27	A.2.6.	No	Change "MSDS's" to "MSDSs".	1	A.2
A	3 of 27	A.2.8.	No	Add Title "Waste Treatment Residues".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
A	3 of 27	A.3.1.	Yes[3]	Change "a Chemical Waste Disposal Request (Form 103A Part A, Figure A-1)" to "Form 1541 (Figure A-1) to request disposal".	1	B.3
A	3 of 27	A.3.1.	No	Insert "Chemical and Mixed" before "Waste Management".	1	A.1
A	3 of 27	A.3.1.	No	Change "CST-7" to "CST-5" (two times).	1	A.1
A	3 of 27	A.3.1.	No	Change "containrt" to "container" and "ect." to "etc.".	1	A.2
A	4 of 27	A.3.2.	No	Insert ")" after "toluene".	1	A.2
A	4 of 27	A.3.2.	No	Change "DOT" to "RCRA".	1	A.2
A	4 of 27	A.3.2.	Yes[4]	Delete "cyanide or sulfide compounds".	1	A.1
A	4 of 27	A.4.	No	Change "DISPSOAL" TO "DISPOSAL".	1	A.2
A	5 of 27	A.4.	No	Insert "to" after "Lab pack waste refers".	1	A.2
A	5 of 27	A.4.	No	Change "absorbants" to "absorbents".	1	A.2
A	5 of 27	A.4.1.1.	No	Change "offsite" to "off site".	1	A.2
A	5 of 27	A.4.1.2.	No	Change "onsite" to "on site".	1	A.2
A	5 of 27	A.4.1.2.	No	Change "CST-7" to "CST-5".	1	A.1
A	6 of 27	A.4.1.3.	No	Change "onsite" to "on site".	1	A.2
A	6 of 27	A.4.1.4.	No	Change "offsite" to "off-site" and "onsite" to "on-site".	1	A.2
A	6 of 27	A.4.1.4.	No	Change "is" to "are" after "such as heat value,".	1	A.2
A	6 of 27	A.4.2.1.	No	Change "Waste" to "Commercial Chemical Waste".	1	A.1, A.2
A	8 of 27	A.4.3.2.	Yes[5]	Change "EP toxic" to "TCLP".	1	B.1.a

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
A	8 of 27	A.4.4.	No	Change "waste" to "wastes" after "Oxidizer lab pack" and "offsite" to "off site".	1	A.2
A	9 of 27	A.4.5.2.	No	Change "operations" to "operation".	1	A.2
A	9 of 27	A.4.6.	No	Change "is" to "are" after "Inorganic wastes".	1	A.2
A	9 of 27	A.4.6.1.	No	Change "Uncommposited" to "Uncomposited".	1	A.2
A	9 of 27	A.4.6.1.	No	Change "offsite" to "off-site".	1	A.2
A	10 of 27	A.4.6.2.	No	Change colon to period after "solid waste at the Laboratory".	1	A.2
A	10 of 27	A.4.9.	No	Delete "a" after "resulting from the treatment of".	1	A.2
A	11 of 27	A.4.10.	No	Delete "Number" from after "hazardous waste code".	1	A.1
A	11 of 27	A.5.	No	Change "implementated" to "implemented".	1	A.2
A	11 of 27	A.5.	No	Change "," to "." after "by the Laboratory".	1	A.2
A	12 of 27	A.5.1.	No	Change "off site" to "off-site" (two times).	1	A.2
A	12 of 27	A.5.2.	No	Delete "which" after "a process that".	1	A.2
A	Global	Table A-1	Yes[5]	Change "EP toxic" to "TCLP toxic".	1	B.1.a
A	16 of 27	Table A-2	No	Change "RGW" to "RGN".	1	A.2
A	17 of 27	Table A-3	Yes[6]	Delete "and Graphite Furnace AA Spectroscopy".	1	A.1
A	17 of 27	Table A-3	Yes[7]	Delete "EP Toxicity Extraction[3] and" for the entry for "Mercury".	1	B.1.a
A	17 of 27	Table A-3	Yes[8]	Change "SW1310" to "(L) SW7470, (S) SW7474".	1	A.1
A	17 of 27	Table A-3	Yes[9]	Move the entry for "TCLP" to above the entry for "Arsenic"; insert "Toxicity Characteristic Leaching Procedure" in the Test Method column; and change "40 CFR Part 268, Appendix I" to "SW1311".	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
A	18 of 27	Table A-3	Yes[5]	Delete "EP Toxicity Extraction[3] and" from the entry for "Organochlorine Pesticides".	1	B.1.a
A	19 of 27	Table A-3	Yes[5]	Change "EP Toxicity and other" to "TCLP".	1	B.1.a
A	20 of 27	Table A-4	No	Change "Amonium" to "Ammonium".	1	A.2
A	21 of 27	Table A-4	No	Change "Hezanitrostilbene" to "Hexanitrostilbene".	1	A.2
A	22 of 27	Table A-4	No	Change "wt%polystyrene" to "wt% polystyrene" (two times).	1	A.2
A	23 of 27	Table A-4	No	Change "multi perorated" to "multi-perforated" (two times).	1	A.2
A	24 of 27	Table A-4	No	Change "M-" to "DX-" and "WX-" to "ESA-".	1	A.1
A	24 of 27	Table A-4	No	Change "GRoups" to "Groups" and "group" to "Group".	1	A.2
A	25 of 27	Figure A-1	Yes[10]	Replace "Chemical Waste Disposal Request Form" with the updated form and change Figure title to "Waste Disposal Request Form".	1	B.3

1 The text referenced the hazardous waste codes "D001 and D016" for "residual pesticides and herbicides." The codes actually applicable to this waste stream are D012 through D014.
2 The F003 code is not applicable to paint wastes per EPA guidance.
3 LANL is reducing its internal paperwork burden and developing waste disposal forms that accommodate multiple waste types. Because this effort may result in changes to the form's title, LANL proposes to replace references to the *Chemical Waste Disposal Request* with *waste disposal request* to reduce the need for future permit modifications. This modification also updates the form number.
4 Several "cyanide and sulfide compounds" are RCRA regulated; therefore, this clause was removed.
5 This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.
6 Graphite Furnace AA Spectroscopy is being removed because EP Toxicity Extraction is the complete title for SW1310.
7 EP Toxicity Extraction is being removed as this method has been replaced with the Toxicity Characteristic Leaching Procedure. In addition, the method number referenced is for the analytical test method only and does not include the extraction method.
8 This change is being made to provide the proper reference number for Manual Cold Vapor Technique (SW7470 for liquids and SW7474 for solids).
9 This change is being made to provide the proper reference for the Toxicity Characteristic Leaching Procedure.
10 LANL is reducing its internal paperwork burden and developing waste disposal forms that accommodate multiple waste types. Through this effort, LANL has changed the format of the waste disposal request. This modification incorporates the current form into the permit.

WASTE ANALYSIS PLAN
AND
WASTE SEGREGATION PROCEDURES

PERMIT ATTACHMENT A
NM0890010515-1

ATTACHMENT A
WASTE ANALYSIS PLAN

A.1 INTRODUCTION

This Permit Attachment A addresses the waste analysis and waste segregation procedures ~~impleemnted~~ implemented by Los Alamos National Laboratory (the Laboratory). Only the sampling and analysis procedures for RCRA-~~controled~~controlled hazardous wastes are discussed here.

A.2 ~~TPYES~~ TYPES OF WASTE GENERATED AT LOS ALAMOS

Hazardous waste generated by Laboratory activities can be considered as three general types: (1) wastes from processing operations, (2) wastes from research and development (R&D) activities, and (3) high explosive (HE) waste. Each of these general types has unique characteristics. Processing wastes typically are significant volumes of material that contain a very limited number of contaminants. R&D wastes, however, are typically lesser volumes of a variety of laboratory reagents, chemicals, solvents and other general laboratory waste. The composition and concentration of contaminants in a given process waste is generally uniform unless modifications to the process are made. Conversely, the waste species from R&D activities continually vary depending on the activities of the rapidly changing R&D efforts at the Laboratory. HE wastes consist of a narrow assemblage of chemicals, the concentrations of which may vary. The chemical assemblage, however, remains fairly constant.

The Laboratory has developed procedures for the identification and segregation of hazardous wastes. When a waste is identified as hazardous, it is diverted to the appropriate method of storage, treatment or disposal based on its characteristics as determined by the Waste Analysis Plan.

Presented below is a description of the types of wastes generated, treated, and stored at the Laboratory and those disposed of at off-site permitted facilities. The wastes are divided according to process or facility activities which generate the wastes.

A.2.1 Wastes from Basic and Applied Chemistry R&D Programs

Primary Laboratory sites for basic and applies chemistry R&D include the Chemistry and Metallurgy Research Building (TA-3-29), the Radiochemistry Laboratory (TA-48), the Sigma Building (TA-3-66), and the Health Research Laboratory (TA-43). Typical nonradioactive chemical wastes consist of large quantities of partly empty small containers of laboratory reagents, solvents, test samples, and other laboratory wastes. Up to several hundred waste types consisting of relatively small quantities of different acids, bases, organics, inorganics, reactive metals and other chemicals require disposal. These R&D wastes represent nearly all of the waste species included in Permit Attachment G.

A.2.2 Surface Finishing Process Wastes

The Electrochemistry Section of the ~~MST-7~~ MST-6 Materials Technology: ~~Polymers and Coatings Group,~~Metallurgy Group located at TA-3-66 generates plating solutions containing heavy metals. Some of the wastes also contain cyanides. These plating solutions are coded as toxic and reactive wastes D007,

D008, D011, F007, and F009. The Print Circuit Board Shop ~~of the MEC-10 Electronic Manufacturing and Technician Resources Group,~~ located at TA-3-40 generates primarily acid/base wastes heavily contaminated with copper. This shop generates plating solutions contaminated with lead and mercury. These wastes are coded as D002, D008, and D009, respectively. The Fabrication Section of the ~~M-7~~ DX-10 Detonation Systems Group, located at TA-22-91, generates copper contaminated ferric chloride etching waste that is corrosive. It is coded D002.

A.2.3 Isotope Separation Wastes

~~The Isotope and Structural Chemistry Group, INC-4, generates~~Research Groups generate 7N nitric acid and 14N sulfuric acid wastes that are hazardous because of their corrosive characteristic (D002). Based on knowledge of the waste generating process, it has been determined that these wastes do not contain heavy metals.

A.2.4 Shops Department Wastes

The Main Shops Department, Building TA-3-39, houses most of the machine shop capabilities at the Laboratory. Waste materials from machining operations are segregated by the metal they contain when generated. ~~when generated.~~ (For example, there are containers for aluminum chips and turnings.) Some machining operations generate waste lithium metal and lithium hydride, both of which are hazardous because of their reactivity (D003). These materials, when generated, are known and are not commingled with other metal wastes. The Main Shops Department also generates waste nonhalogenated solvents (F003) and halogenated degreasers (F001) and solvents (F002).

A.2.5 Explosives Wastes

High explosive (HE) waste is generated by the ~~Dynamics Testing (M)~~ Dynamic Experimentation (DX) and ~~Design Engineering (WX)~~ Engineering Sciences and Applications (ESA) Divisions in the course of processing and testing various HE materials. Processing includes pressing, machining, and casting HE. Waste occurs as discrete pieces of HE, as well as chips, machine cuttings, and powder. Solid HE may include off-specification or old explosives, as well as scrap pieces of HE from processing operations. The chips, cuttings, and powder are usually in the form of waterborne suspensions, collected in specially designed accumulating/settling sump tanks. Spent carbon (K045) from the TA-16 wastewater treatment unit is generated approximately twice a year. Wastes also consist of materials contaminated with HE; these may include paper, oil, solvents, wood, machine tools, fixtures, etc. HE-contaminated equipment, tools, and other large items are considered reactive, D003. HE-contaminated oil may also contain listed solvents, F001, F002, F003, and/or F005, as well as exceeds TCLP levels for barium, (D005). Chemically, the predominant wastes consist of HMX (High Melting Explosives), RDX (cyclonite), TNT (2,4,6 trinitrotoluene), PETN (pentaerythriotol tetranitrate), ammonium nitrate, barium nitrate, TATB (triaminotrinitrobenzene), nitrocellulose, tetryl, nitroguanidine, and various plastic binders. Nearly all the HE waste substances are ignitable (D001) or reactive (D003) and barium nitrate is a TCLP waste (D005). Residues from HE waste are generated by flashing or burning HE waste at TA-16. These residues are typically present in the uppermost layer of sand that covers the burn pad. The sand from the two pads used to burn pieces of explosives is considered hazardous because of its barium content (D005).

A.2.6 Maintenance Activity Wastes

The Laboratory's ~~Engineering~~ Facilities, Security and Safeguards Division and support maintenance contractor, JCI, generate a variety of wastes in the course of performing maintenance work. Hazardous wastes range from residual pesticides and herbicides (e.g. D~~001~~12 and D0~~16~~14) to paints/thinners (e.g. D001 and D008~~, and F003~~). Classification of these wastes can generally be performed by process knowledge and the use of Material Safety Data Sheets (MSDS's).

A.2.7 Chemically Contaminated Equipment

In addition to the wastes noted above, various laboratory items that contain chemical residues or are otherwise chemically contaminated may be considered hazardous waste. Empty process tanks are typical contaminated items. Empty drums and containers meet the requirements of HWMR-6 Part 2, Section 261.7 and are therefore not considered hazardous waste. Generation of this type of hazardous waste occurs throughout the Laboratory facilities and produces a wide variety of waste types.

A.2.8 Waste Treatment Residues

Treatment operations at the Laboratory generate solid hazardous waste. These residues include the barium contaminated sand from the explosives burning operations, ash from the incinerator, and sludge from the chemical treatment operations. The classification and volume of the waste varies with the waste that was treated.

A.3 WASTE ANALYSIS AND HANDLING PROCEDURES FOR STORAGE

This section specifies the procedures for the identification and handling of hazardous waste for storage at the Laboratory. The decision process is summarized in Table A-1.

A.3.1 Waste Identification

When chemical substances are declared to be in excess, the originating group completes Form 1541 (Figure A-1) to request disposal ~~a Chemical Waste Disposal Request (From 10-3A Part A, Figure A-1)~~ and sends the form to the Chemical and Mixed Waste Management Group (CST-~~7~~5). The request lists the chemical waste the generating group needs to dispose of the quantity and physical form of the wastes, and other pertinent information such as the condition of the containers. Material Safety Data Sheets (MSDSs) and existing analytical data may also be available and attached.

Using 49 CFR § 172.101, the CST-~~7~~-5 staff assigns each chemical waste item (bottle, contain~~rter~~, ~~ect.~~ etc.) the appropriate DOT Hazard Class. This assignment and chemical characteristics determine the compatibility of one waste item with another waste item.

Additional information assigned during this review includes EPA hazardous waste codes and transportation information. The completed request form, container marking, and MSDS/analytical data serve as the waste analysis record for the waste to be stored per the following segregation schemes.

A.3.2 Waste Segregation

To prevent adverse interactions of incompatible chemical wastes and to facilitate recycling or treatment of wastes, chemical wastes will be segregated into the following general categories:

- Flammables, such as organic solvents (e.g. acetone, benzene, and toluene);
- Corrosive acidic wastes, including organic and mineral acids;
- Corrosive caustic wastes;
- Oxidizers, such as perchloric or chromic acid, and nonacidic oxidizers, such as permanganates and chlorates;
- Reactive metals and compounds, such as sodium, lithium hydride, and phosphorous trichloride; and
- Non-~~DOT~~RCRA regulated wastes (e.g. nonreactive metals, salts, neutral compounds, ~~cyanide or sulfide compounds,~~ and poisons)

Utilizing the DOT Hazard Class assigned to the container and Table A-2, an area for storage of the waste is assigned. The organics and oxidizers have subcategories of segregation that will be followed for packaging/compositing of wastes to ensure that potential incompatibles are not combined together.

A.4 WASTE ANALYSIS AND HANDLING PROCEDURES FOR TREATMENT AND ~~DISPSOAL~~ DISPOSAL

The Land Disposal Restrictions (LDRs) require that hazardous waste be treated to specified levels or with a specified technology prior to land disposal. The analysis procedures used to determine the LDR treatment standards that are applicable to the waste are described in this section. The decision process for analysis, handling, treatment, and/or disposal is summarized in Table A-1.

Several terms used throughout this section require further explanation.

- LDR is land disposal restricted. When used in this section it refers to all waste currently regulated under 40 CFR Part 268.
- TCLP metals refers to those eight metals regulated under the TCLP characteristic.
- KOP refers to knowledge of process. In the case of original containers of materials, the information from the Chemical Disposal Request Form, as described earlier, is the KOP documentation. All other waste is documented by previous analyses or information provided by the generator.

- Lab pack waste refers to waste containers that have been packed with ~~absorbants~~ absorbents in "lab pack" containers for safe handling and storage. All containers less than 5 gallons must be lab packed.

- Commercial chemical waste refers to chemical substances still in their original containers that have been declared a hazardous waste.

- References to the use of a ~~Coliwasa~~ COLIWASA sampler also includes the use of ~~coliwasa type~~ COLIWASA-type sampling instruments

A.4.1 Organic Waste

Organic waste is divided into four processing categories: uncomposited chemical lab pack waste, drummed waste, composited commercial chemical waste, and composited drummed waste. The following discussions treat each as a unique analysis entity.

A.4.1.1 Uncomposited Lab Pack Waste

These wastes are those, that due to their toxicity or their physical (solid) state, will not be composited but will be packaged in lab pack containers with absorbent. Compatible inorganic and organic wastes are packaged together in these lab pack containers. The entire container is then incinerated. The Laboratory's incinerator cannot generally receive such a package, therefore, most of this waste is and will be shipped ~~offsite~~ off site. The packaging list of bottles and cans in the lab pack container serves as the analytical record. This listing is sufficient to allow the identification of any and all LDR waste.

A.4.1.2 Drummed Waste

There are very few ongoing operations at the Laboratory that generate an organic process waste. As a result, each drum of this waste is virtually a unique entity. The exception would be those cases where we know more than one drum of waste came from the same place, e.g. 400 gallons of oil drained from the same machine reservoir. The drums are all sampled using a ~~coliwasa~~ COLIWASA sampler if liquid or a core sampler if solid. Because this waste is destined for incineration, the following parameters are tested for: pH, ash content, viscosity, heat value, TCLP metals, total organic halogen, total organic chlorine, sulfur, and chemical composition. This latter will identify approximately ninety-five percent of the substances that are present in the waste. Availability of documented KOP will determine if the organic trace analyses need to be performed. Documentation or analyses will identify the presence/absence of organic LDR compounds, trichlorofluoromethane, bromoform, dichlorodifluoromethane and ethylene dibromide. These latter four compounds are only necessary if the waste is to be incinerated ~~onsite~~ on site. The test methods are listed in Table A-3.

Throughout the year, containers of organic waste mixtures, smaller than a 55-gallon drum, are generated in the many laboratories of LANL. The generator maintains a list of the substances placed in these containers. This allows CST-~~7~~5 personnel to confirm compatibility of these wastes before they are composited into 55-gallon or larger containers. When the composite receptacle is full, the waste is analyzed as described above for any large container of organic waste.

Solid organic waste is sampled using a core sampler or a grab sampler if the material can not be penetrated by a core sampler. Analytical parameters, frequencies, and test methods would be the same as those outlined above for any large container of waste. Debris that is organically contaminated is analyzed per Section A.4.8.

A.4.1.3 Composited Commercial Chemical Waste

Composited commercial chemical wastes are those bottles and cans of liquid waste that have been combined for the purpose of incineration. Compatibility is ensured by following the procedures in Section A.3.1 and A.3.2. Since all chemicals in a composite drum are known entities, the list of chemicals and their quantity serves as the primary analysis record. This listing is sufficient to allow the identification of any and all LDR waste. When the drum is full, it is sampled with a ~~coliwasa~~ COLIWASA sampler. Since chemical composition is known, only the physical parameters need to be calculated or analyzed for. If any physical characteristics can not be calculated due to the variety of substances placed in the drum, the sample is analyzed for that parameter. Therefore, analysis or calculation would provide pH, flashpoint, ash content, viscosity, heat value, total organic halogens, and total organic chlorine. The methods used for these analyses are specified in Table A-3. This will be done for each container of composited waste since each container is unique. Calculated parameters for waste to be incinerated ~~onsite~~ on site will be verified according to the schedule in Permit Module V, C.2.

A.4.1.4 Composited Drummed Waste

Composited drummed waste are those drums of waste for which the analytical data on pH, flashpoint, ash content, viscosity, heat value, total organic halogens, and total organic chlorine already exists. These wastes are combined in either the TA-54, Area L storage tanks or the liquid feed tanks at the incinerator for the purposes of off-site shipment or on-site incineration. Compatibility is ensured by following the procedures in Sections A.3.1 and A.3.2. Chemical and physical parameters can be calculated from the existing data. If at any time calculations of physical parameters, such as heat value, ~~is~~ are inadequate, those identified analyses will be redone. The calculations will be performed on each unique tank of waste. Calculated parameters for waste to be incinerated on site will be verified according to the schedule in Permit Module V, C.2.

A.4.2 Corrosive Acid Waste

Corrosive acid waste is handled in two primary processing categories: commercial chemical and process waste. The following discussions treat each as a unique analysis entity.

A.4.2.1 ~~Waste~~ Commercial Chemical Waste

This waste stream consists of unused acids in original containers. The labels on the containers and MSDSs continue to serve as the primary analytical record. Those acids that can be reused by another component of the Laboratory are redistributed for use as a commercial product. Those that can not be reused are treated by elementary neutralization. This occurs primarily at the TA-50 Liquid Waste Treatment Plant but could occur throughout LANL in individual laboratories.

A.4.2.2 Process Waste

There are three categories of process waste: nonroutine nonmetallic waste, nonroutine metallic waste, and routine waste. Each is discussed separately. Documented KOP will negate the concern for the presence of LDR organic compounds. Therefore, references to LDR in this section refers only to inorganic constituents.

Nonroutine nonmetallic waste is periodically generated throughout the Laboratory. This waste will be analyzed for pH, the TCLP metals, nickel and thallium. This allows confirmation of the presence/absence of LDR material. The test methods employed are listed in Table A-3. Sampling is performed using a ~~coliwasa~~ COLIWASA sampler. Because this is defined as a nonroutine waste stream, every unique drum or batch will be sampled.

Nonroutine metallic waste is generated primarily by the Laboratory's electroplating operations. At the time of generation, these wastes are identified by the generator as containing heavy metals. The generator may also provide the approximate metal concentration, if the information is available. This waste will be analyzed for pH, TCLP metals, nickel and thallium. This allows confirmation of the presence of LDR material and establishes the parameters that are analyzed for at the completion of treatment. The test methods employed are listed in Table A-3. Sampling is performed using a ~~coliwasa~~ COLIWASA sampler. Because this is defined as a nonroutine waste stream, every unique drum or batch will be sampled.

There are five routinely generated acidic waste streams at the Laboratory: nonmetallic nitric acid, nonmetallic sulfuric acid, nonmetallic acid stream, metallic ferric chloride, and metallic ammonium persulfate. Each of these waste streams has a confirmed basis for RCRA regulation that establishes the parameters of concern for treatment. All three of the nonmetallic acid waste streams are routinely analyzed for pH. The metallic ferric chloride is analyzed for pH, chromium, silver, lead, and copper. The metallic ammonium persulfate is analyzed for pH, lead, and mercury. Annually, all of these streams are all reevaluated for pH, all TCLP metals, nickel, and thallium. This confirms that the waste has not changed in composition and identifies the LDR components. Sampling is conducted with a ~~coliwasa~~ COLIWASA sampler. All test methods are listed in Table A-3.

If a nonroutine waste stream becomes a routine waste or a new waste stream is identified, these wastes will be characterized following the procedures described in the above paragraph. Routine testing parameters will be established and reverified on an annual basis.

A.4.3 Corrosive Caustic Waste

Corrosive caustic waste is divided into two processing categories: commercial chemical waste and process waste. The following discussions treat each as a unique entity for analysis.

A.4.3.1 Commercial Chemical Waste

This waste stream consists of caustic products (bases) in their original containers. The labels on the containers and MSDSs serve as the primary analytical record. Those bases that can be reused by another component of the Laboratory are redistributed for use as a commercial product. Those that can not be

reused are generally treated by elementary neutralization. This occurs primarily at the TA-50 Liquid Waste Treatment Plant but could occur throughout LANL in individual laboratories.

A.4.3.2 Process Waste

There are three categories of process waste: nonroutine nonmetallic waste, nonroutine metallic waste, and routine waste. Each is discussed separately. Documented KOP will negate the concern for organic LDR compounds. Therefore, references to LDR in this section refers only to inorganic constituents.

Nonroutine nonmetallic waste is periodically generated throughout the Laboratory. This waste will be analyzed for pH, the TCLP metals, nickel and thallium. This allows confirmation of the presence of LDR material. The test methods employed are listed in Table A-3. Sampling is performed using a ~~coliwasa~~ COLIWASA sampler. Because this is defined as a nonroutine waste stream, every unique drum or batch will be sampled.

Nonroutine metallic waste is generated primarily by the Laboratory's electroplating operations. At the time of generation, these wastes are identified by the generator as containing heavy metals. This waste will be analyzed for pH, ~~EP toxic~~ TCLP metals, nickel, thallium, and cyanide. This procedure allows confirmation of the presence of LDR material and establishes the parameters that are analyzed for at the completion of treatment. The test methods employed are listed in Table A-3. Sampling is performed using a ~~coliwasa~~ COLIWASA sampler. Because this is defined as a nonroutine waste stream, every unique drum or batch will be sampled.

There are three routinely generated corrosive base process waste streams at Los Alamos: ammonium etchant, "Replenisher" solution, and "Cuposit." The Replenisher and Cuposit are trade names. The ammonium etchant is analyzed for pH, copper, and lead. The Replenisher is analyzed for pH and lead. The Cuposit is analyzed for pH and mercury. Annually, these waste streams are all reevaluated for pH, all TCLP metals, nickel, and thallium. This allows confirmation of the presence of LDR substances and that the waste has not changed in composition. Sampling is performed with a ~~coliwasa~~ COLIWASA sampler. Test methods used are listed in Table A-3.

If a nonroutine waste stream becomes a routine waste stream or a new waste stream is identified, these wastes will be characterized following the procedures described in the above paragraphs. Routine testing parameters will be established and reverified on an annual basis.

A.4.4 Oxidizer Waste

Oxidizer waste is divided into two processing categories: acid waste and uncomposited lab pack waste. Acid oxidizer waste is handled according to the procedures described Section A.4.2.

Oxidizer lab pack ~~waste~~ wastes are not composited due to the high fire risk of doing so. These wastes are packaged in lab pack containers with absorbent. The entire container is then incinerated. The Laboratory's incinerator cannot generally receive such a package; therefore, most of this waste is and will be shipped ~~offiste~~ off site. The packing list of bottles and cans in the lab pack container serves as the analytical record. This listing is sufficient to allow the identification of any and all LDR waste.

A.4.5 Reactive Wastes

Reactive waste has only two processing categories: uncomposited lab pack waste and routine process waste. (Explosives waste is treated as a separate category of waste and is discussed in Section A.4.7.) The following discussions treat each as a unique analysis entity.

A.4.5.1 Uncomposited Lab Pack Waste

Reactive lab pack wastes are not composited due to the high fire and explosion risk of doing so. They are packaged in lab pack containers with absorbent. The entire container is then incinerated. The Laboratory's incinerator cannot generally receive such a package; therefore, most of this waste is and will be shipped off site. The packing list of bottles and cans in the lab pack container serves as the analytical record. This listing is sufficient to allow the identification of any and all LDR waste.

A.4.5.2 Process Waste

The only ongoing operation at the Laboratory that generates a reactive process waste is the machining ~~operations~~ operation. Periodically, the machinists are required to work with lithium hydride and to a lesser degree lithium metal. This results in drums of lithium hydride dust and lithium chips, respectively. Process knowledge serves as the analytical record for this waste stream.

If large quantities of reactive waste should be produced elsewhere in the Laboratory, documented process knowledge would also be used as the analytical record.

A.4.6 Inorganic Wastes

Inorganic wastes ~~is~~ are divided into two processing categories: uncomposited commercial chemical waste and process waste. The following discussions treat each as a unique analysis entity.

A.4.6.1 ~~Uncommposited~~ Uncomposited Commercial Chemical Waste

These wastes are generally solid material and therefore do not lend themselves to compositing. They will be packaged in lab pack containers with absorbent. Organic and inorganic wastes that are compatible are lab packed together. The entire container is then usually destined for ~~offsite~~ off-site land disposal. The packing list of bottles and cans in the lab pack container serves as the analytical record. This listing is sufficient to allow the identification of any and all LDR waste.

A.4.6.2 Process Waste

Four categories of inorganic process waste exist: liquid waste, primary metal waste, nonroutine solid waste, and routine solid waste. Inorganic liquid waste is generally acidic or basic and is thus treated under the scenarios described in Sections A.4.2 and A.4.3.

Process knowledge is considered adequate for the further treatment/disposal/recycle of waste streams such as lead and mercury.

Nonroutine solid waste is periodically generated throughout the Laboratory. This waste will be analyzed for TCLP metals, nickel and thallium. This allows confirmation of the presence of LDR material. The absence of organics will be established by either documented KOP or analysis. The test methods employed are listed in Table A-3. Sampling is performed using a core sampler if possible or a grab sampler if it is not possible to penetrate the waste with a core sampler. Because this is defined as a nonroutine waste stream, every unique drum or batch will be sampled.

There is one routinely generated inorganic solid waste at the Laboratory~~:~~. It is the barium contaminated sand from the explosives burning operation. Barium is the only established parameter of concern for treatment and therefore is the only parameter routinely analyzed for. Annually, a sample will be analyzed for the other TCLP metals. Sampling is conducted with a core sampler. Test methods are listed in Table A-3.

If a nonroutine waste stream becomes a routine waste stream or a new waste stream is identified, these wastes will be characterized following the procedures described in the above paragraph. Routine testing parameters will be established and reverified on an annual basis.

A.4.7 Explosives Waste

Due to the limited number of areas producing explosives waste and the safety problems associated with analyzing explosives waste, process knowledge of the waste sent for treatment by open burning or open detonation is the waste analysis record. Table A-4 lists the various explosives used at the Laboratory. Open burning/open detonation is conducted under interim status according to HWMR-5 Part VI, Section 265.282.

A.4.8 Contaminated Solid Waste

The waste included in this category is generally classified as debris. Contaminated soil would be addressed under the respective chemical category as outlined in the above sections. The contaminant of concern is known for all waste in this category but the substrate can not be readily analyzed. Therefore, until the item in question is cleaned it is treated as a hazardous waste. The types of waste covered by this provision would be tanks and rags.

A.4.9 Waste Treatment Residuals

Waste treatment residuals are the liquid and solid waste streams resulting from the treatment of ~~a~~ hazardous wastes. There are currently four types of residual waste streams: the treated liquid and precipitate from chemical treatment operations at either TA-50 or -54 and the scrubber water and ash from the incinerator. Barium contaminated sand is also a treatment residue but because it receives further chemical treatment it is discussed in Section A.4.6.2.

The liquid from chemical treatment operations is tested to insure that (a) treatment is complete and (b) remaining chemical concentrations are within the discharge guidelines established under the NPDES permit for the TA-50 radioactive liquid waste treatment system. Sections A.4.2 and A.4.3 discuss the procedures used to establish those parameters that would be tested for at the conclusion of treatment. If documented KOP can not exclude the presence of F-listed solvents, then each batch of treatment supernate

will be tested for the compounds listed in 40 CFR § 261.3.(a).2.iv.A and B. Samples from the Batch Waste Treatment Unit are taken from a sampling loop. Samples from the treatment tanks at TA-54 will be taken by either a ~~coliwasa~~ COLIWASA or grab sample. Test methods used are provided in Table A-3. The scrubber water from the incinerator will always be within the discharge guidelines established under the NPDES permit for the TA-50 radioactive liquid waste treatment system thereby negating chemical analysis. The scrubber will be analyzed annually to verify this.

Solids from the chemical treatment operations and the ash from the incinerator are tested for the TCLP metals that were found to be present before treatment. As necessary, these wastes are then cemented or otherwise solidified. The solidified matrix may again be sampled by removing a sample from the mixture before curing. After curing, it is tested for the same TCLP metals. Assuming there are no listed materials present, this would allow a determination to be made as to whether the waste remained a hazardous waste or not. This procedure would be followed for each batch of solids requiring processing.

A.4.10 Unknown Material

Occasionally, chemicals of an unknown nature require disposal. These wastes are handled on a case-by-case basis. The individual waste may be tentatively characterized by knowledge of the operations and activities that were performed in the specific area in which the waste was generated. This information is used to restrict the choices of initial waste analysis to a small population of chemicals.

For purposes of managing unknown wastes a small volume is defined at the Laboratory as less than one liquid gallon (or approximately four liters). The rationale for the small volume designation is that this is the minimum quantity of sample that is needed to analyze the waste. At and below this volume limitation the sample is entirely consumed in the analytical procedure. Small volumes of unknown wastes are analyzed for pH, flashpoint, and reactivity. This allows the material to be categorized for further handling.

Volumes greater than one gallon or four liters of a single unknown waste require a more detailed analytical scheme. These wastes are tested for reactivity, corrosivity, ignitability, TCLP metals, and any other analyses indicated by the initial data gathered on the material. Sufficient detail must be reported to allow the assignment of the proper EPA hazardous waste code ~~Number~~ to the waste. All test methods used are outlined in Table A-3.

A.5 VERIFICATION ANALYSES

Knowledge of process is used to identify the waste streams; however, the hazardous constituents must be verified using specified analytical procedures at specified intervals. This section describes the verification process ~~implementated~~ implemented by the Laboratory~~,~~.

A.5.1 Knowledge of Process

One in each one hundred Knowledge of Process (KOP) determinations based on a list compiled by the generator as wastes are accumulated in a compositing container will be verified by quantitative chemical analysis. Factory sealed containers and original containers redistributed for use within the facility will

not be included in this analysis. Detection of hazardous constituents above one percent by volume, not recorded in the KOP documentation, or variations in concentration greater than

twenty five percent from the estimate $\frac{C_{meas} - C_{est}}{C_{est}} \cdot 100 \geq 25$

shall be cause for rejection of the KOP and shall require an investigation into the cause. A written record of the investigation shall be retained with the facility record. Any individual who twice fails to properly document KOP constituents shall be permanently prohibited from KOP certification. An entry to this effect shall be made in the facility record.

Unused commercial chemicals in original containers that have been declared a hazardous waste accepted by an off-site disposal or treatment facility need not be verified unless rejected by the off-site treatment facility.

A.5.2 Annual Verification

All routinely generated waste streams that have documented waste profiles will be analyzed annually to verify that they have not changed. Any information that indicates a change in a process that ~~which~~ generates a waste that may affect the waste, shall cause the waste to be analyzed not later than the next time the waste is generated. All such analyses shall be recorded in the facility record.

TABLE A-1
WASTE STREAMS, ANALYTICAL PARAMETERS, AND RATIONALE

Waste Stream	Analytical Parameters	Rationale Reference
Organic Waste		
- Uncomposited lab pack	Packing list	A.4.1.1
- Drummed	pH, ~~EP~~TCLP toxic metals, TOX, TOC, ash content, viscosity, heat value, sulfur, chemical composition	A.4.1.2
- Composited lab packs and drums	List of chemicals, pH, flashpoint, ash content, viscosity, heat value, TOX, TOC	A.4.1.3, A.4.1.4
Corrosive Acid		
- Lab pack	pH, as necessary	A.4.2.1
- Nonroutine, nonmetallic process waste	pH, ~~EP~~TCLP toxic metals, nickel, thallium	A.4.2.2
- Nonroutine, metallic process waste	pH, ~~EP~~TCLP toxic meals, nickel, thallium	A.4.2.2
- Routine nonmetallic process waste	pH	A.4.2.2
- Ferric chloride	pH, chromium, silver, lead, copper	A.4.2.2
- Ammonium persulfate	pH, lead, mercury	A.4.2.2
Corrosive Base		
- Lab pack	pH, as necessary	A.4.3.1
- Nonroutine nonmetallic process waste	pH, ~~EP~~TCLP toxic metals, nickel, thallium	A.4.3.2
- Nonroutine metallic process waste	pH, ~~EP~~TCLP toxic metals, nickel, thallium	A.4.3.2

TABLE A-1
WASTE STREAMS, ANALYTICAL PARAMETERS, AND RATIONALE
(continued)

Waste Stream	Analytical Parameters	Rationale Reference
- Ammonium etchant	pH, copper, lead	A.4.3.2
- "Replenisher"	pH, lead	A.4.3.2
- "Cuposit"	pH, mercury	A.4.3.2
Oxidizer - Lab packs	Packing list	A.4.4
Reactive - Lab packs	Packing list	A.4.5.1
- Process Waste	Knowledge of process	A.4.5.2
Inorganic - Lab pack	Packing list	A.4.6.1
- Primary Metals	Knowledge of process	A.4.6.2
- Nonroutine Solid	~~EP~~TCLP toxic metals, nickel, thallium	A.4.6.2
- Barium Sand	Barium	A.4.6.2

TABLE A-1
WASTE STREAMS, ANALYTICAL PARAMETERS, AND RATIONALE
(continued)

Waste Stream	Analytical Parameters	Rationale Reference
Explosives	Knowledge of process	A.4.7
Contaminated Debris	Knowledge of process	A.4.8
Waste Treatment Residues		
- Chemical Treatment Liquids/Solids	Previously established parameters	A.4.9
- Incinerator Ash	Previously established parameters	A.4.9
- Incinerator Scrubber Water	Knowledge of process	A.4.9
Unknowns		
- Small Volume (< 1 gal.)	pH, flashpoint, reactivity	A.4.10
- Large Volume	All parameters necessary to identify waste completely	A.4.10

TABLE A-2
PACKAGING SEGREGATION SCHEME

Storage Category	Packaging Category	~~RGW~~RGN
Organics (1)	A	4, 5, 9, 13, 14, 16, 17, 19, 26, 29, 31, 32, 101
	B	6, 7, 8, 27, 28
	C	12, 20
	D	34, 18
Oxidizers (2)	A	2
	B	104
	C	30
Acids (3)	N/A	1, 3
Bases (4)	N/A	10, 11, 33, 105
Reactives (5)	N/A	21, 22, 25, 102, 107 - ALL STORED INDIVIDUALLY - NO COMBINING ALLOWED
Nonreactive Metals (6)	N/A	11, 15, 23, 24, 33 - 11 and 33 would only be allowed in lab pack, solid quantities
Others		The following must be evaluated on a case-by case basis to determine which of the above categories is appropriate: 25, 102, 103.

TABLE A-3
WASTE ANALYSIS PARAMETERS AND TEST METHODS

Parameter	Test Method	Reference[1]
Ignitability	Pensky-Martens Closed-Cup Method	(L) SW1010 (L) ASTM D93-80
Reactivity	Numerous methods and tests[2]	(L,S) SW Section 2.1.3
pH	Electrometric	(L) SW9040
EP Toxicity	EP Toxicity Extraction[3] ~~and Graphite Furnace AA Spectroscopy~~	(L,S) SW1310
Toxicity Characteristic Leaching Procedure (TCLP)	Toxicity Characteristic Leaching Procedure	(L,S) SW1311
Arsenic		(L) SW7060
Barium		(L) SW7081, SW7080
Cadmium		(L) SW7131, SW7130
Chromium		(L) SW7191, SW7190
Lead		(L) SW7421, SW7420
Selenium		(L) SW7740
Silver		(L) SW7761, SW7760
Mercury	~~EP Toxicity Extraction[3]~~ ~~and~~ Manual Cold Vapor Technique	(L) ~~SW1310~~ SW7470 (S) SW7474

TABLE A-3
WASTE ANALYSIS PARAMETERS AND TEST METHODS
(continued)

Parameter	Test Method	Reference[1]
~~Toxicity Characteristic Leaching Procedure (TCLP)~~		~~(L,S) 40 CFR Part 268, Appendix I~~
Organochlorine Pesticides	~~EP Toxicity Extraction[3] and~~ Gas Chromatography	(L) SW8080
Chlorinated Herbicides		(L) SW8150
Chemical Composition	95% organic composition by GC/FID	(L) SW8100
Trace Organic Analysis	Any of the following:	
	Volatile organic compounds-GC/MS	(L) SW8240
	Semivolatile organic compounds-GC/MS	
	- Packed column	(L) SW8250
	- Capillary column	(L) SW8270
Heat Value	Bomb calorimeter	(L) A006, ASTM D240
Organic Chlorine	Halide titration of combustion residue	(L,S) A004, ASTM D2361
Ash Content	Residue after combustion in muffle furnace	(L) A001, ASTM D482 (S) A001, ASTM D3147

TABLE A-3
WASTE ANALYSIS PARAMETERS AND TEST METHODS
(continued)

Parameter	Test Method	Reference[1]
Cyanide-Free and Total	Distillation and colorimetric (UV)	(L) SW9012
Chrome	Colorimetric method for hexavalent chromium	(L) SW7196
Sulfide	Colorimetric titration	(L) SW9030
Total Metals	Digestion and inductively coupled plasma method	SW3020
Arsenic		(L) SW6010
Barium		(L) SW6010
Beryllium		(L) SW6010
Cadmium		(L) SW6010
Chromium		(L) SW6010
Lead		(L) SW6010
Nickel		(L) SW6010
Selenium		(L) SW6010
Silver		(L) SW6010
Thallium		(L) SW6010
Zinc		(L) SW6010
Mercury	Manual Cold Vapor Technique	(L) SW7470 (S) SW7471
Free Liquids	Paint Filter Liquids Test.	(S) SW9095

[1] "A" refers to Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-002, February 1984.
"ASTM" refers to American Society for Testing Material Standards.
"SW" refers to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition, EPA, November 1986.
"L" refers to liquid waste.
"S" refers to solid waste.

[2] Methods for cyanide and sulfide gas generation are pending. SW-846 methods will be used when they become available. Methods recommended by the EPA will be used in the interim.

[3] If ~~EP Toxicity and other~~ TCLP analyses do not permit identification of an unknown chemical waste, digested metal samples (per SW3020) will be analyzed for the metals noted.

TABLE A-4
ESTABLISHED EXPLOSIVES AT TA-16
NOMINAL COMPOSITIONS

Name or Code	Composition
A1 AMFO	~~Amonium~~ Ammonium nitrate/fuel oil/aluminum power
AN	Ammonium nitrate
AMFO	Ammonium nitrate/fuel oil
Baratol	76 wt% Barium nitrate/24 wt% TNT
BDNPA	Bis(dinitropropyl) acetal
BDNPF	Bis(dinitropropyl) formal
Black powder	74 wt% Potassium nitrate/15.6 wt% charcoal/10.4 wt% sulfur
Boracitol	60 wt% Boric acid/40 wt% TNT
BTX	5,7-Dinitro-1-picrylbenzotriazole
Composition A-3	91 wt% RDX/9 wt% beeswax
Composition A-4	97 wt% RDX/3 wt% beeswax
Composition A-5	98.5 wt% RDX/1.5 wt% beeswax
Composition B and B-3	60 wt% RDX/40 wt% TNT
Composition C-3	88 wt% RDX/12 wt% wax
Composition C-4	91 wt% RDX/2.1 wt% polyisobutylene/1.6 wt% motor oil/5.3 wt % de(2-ethylhexyl) sebacate
Cyclotol, 75/25	75 wt% RDX/25 wt% TNT
Cyclotol, 70/30	70 wt% RDX/30 wt% TNT
DATB	Diaminotrinitrobenzene
DBA-1[a]	AN/$NaNO_3$/TNT/H_2O/thickener

TABLE A-4
ESTABLISHED EXPLOSIVES AT TA-16
NOMINAL COMPOSITIONS
(continued)

Name or Code	Composition
Datasheet C	63 wt% PETN/8 wt% NC/29 wt% elastomeric binder
Datasheet D	75 wt% PETN/25 wt% elastomeric binder
	NOTE: Although this material may be red in color, it is an explosive and not an inert material.
DINGU	Dinitroglycoluril
DNPA	2,2-Dinitropropyl acrylate polymer
DNT	Dinitrotoluene
EDC-8[b]	76 wt% PETN/24 wt% Silicone rubber, MS 2420
EDC-28[c]	94 wt% RDX/6 wt% FPC 461
EDC-32[d]	85 wt% HMX/15 wt% Viton A
EDC-37[e]	91 wt% HMX/1 wt% nitrocellulose/8 wt% K-10 liquid
EDC-38[f]	94.5 wt% HMX/3.5 wt% K-10 Liquid/2 wt% Polyurethane
HBX-1	40 wt% RDX/38 wt% TNT/17 wt% Al/5 wt% Wax/0.5 wt% $CaCL_2$
High Energy Propellants[g]	Solid propellants generally used in missile systems
HMX	Cyclotetramethylenetetranitramine
HNS	~~Hezanitrostilbene~~ Hexanitrostilbene
K-10[h]	65.3 wt% dinitroethylbenzene/34.7 wt% trinitroethylbenzene
LX-04	85 wt% HMX/15 wt% Viton A

TABLE A-4
ESTABLISHED EXPLOSIVES AT TA-16
NOMINAL COMPOSITIONS
(continued)

Name or Code	Composition
LX-07	90 wt% HMX/10 wt% Viton A
LX-14	95.5 wt% HMX/4.5 wt% Estane 5702 F-1
Methane/oxygen[h]	Explosive mixtures of methane and oxygen gases
NC	Nitrocellulose, cellulose nitrate
Nitromethane	Nitromethane
NQ	Nitroquanidine
NTO	1,2,4-nitro-triazole-5-one
Octol	75 wt% HMX/25 wt% TNT
PBX-9001	90 wt% RDX/8.5 ~~wt%polystyrene~~ wt% polystyrene/ 1.5 wt% dioctyl phthalate
PBX-9007	90 wt% RDX/0.4 ~~wt%polystyrene~~ wt% polystyrene/ 0.5 wt% dioctyl phthalate/0.4 wt% resin
PBX-9010	90 wt% RDX/10 wt% Kel-F 3700 elastomer
PBX-9011	90 wt% HMX/10 wt% Estane 5703 F-1
PBX-9205	92 wt% RDX/6 wt% polystyrene/2 wt% dioctyl phthalate
PBX-9206	92 wt% HMX/8 wt% Kel-F 3700 elastomer
PBX-9401	94.2 wt% RDX/3.6 wt% polystyrene/2.2 wt% trioctyl phosphate
PBX-9404	94 wt% HMX/3 wt% nitrocellulose/3 wt% chloroethyl phosphate

TABLE A-4
ESTABLISHED EXPLOSIVES AT TA-16
NOMINAL COMPOSITIONS
(continued)

Name or Code	Composition
PBX-9405	94 wt% RDX/3 wt% nitrocellulose/3 wt% chloroethyl phosphate
PBX-9407	94 wt% RDX/6 wt% Exon 461
PBX-9501	95 wt% HMX/2.5 wt% Estane/2.5 wt% BDNPA/F
PBX-9502	95 wt% TATB/5 wt% Kel-F 800
PBX-9503	80 wt% TATB (Class 2)/15 wt% HMX (Class 2)/5 wt% Kel-F 800
PBIW-113	88 wt% HMX/12 wt% rubber/plasticizer binder
Pentolite	50 wt% PETN/50 wt% TNT
PETN	Pentaerythritol tetranitrate
Picric Acid	Du Pont 85 wt% pure
PYX	2,6-Bis(picrylamino)-3,5-dinitropyridine
RDX	Cyclonite, cyclotrimethylenetrinitramine
Smokeless Powder (Single Base)	Standard military grades. Single or ~~multi perorated~~ multi-perforated grains of colloided nitrocellulose. Stablizers, placticizers, inorganic nitrates, and other modifying agents may also be present.
Smokeless Powder (Double Base)	Standard military grades. Single or ~~multi perorated~~ multi-perforated grains of colloided nitrocellulose containing nitroglycerine or nitroglycol. Stabilizers, plasticizers, inorganic nitrates, and other modifying agents may also be present.
STRATABLAST C[a]	Slurry blasting explosive

TABLE A-4
ESTABLISHED EXPLOSIVES AT TA-16
NOMINAL COMPOSITIONS
(continued)

Name or Code	Composition
TAGN[h]	Triaminoguanidine nitrate
TAL-1005E[a]	Slurry blasting explosive
TATB	Triaminotrinitrobenzene
Tetryl	2,4,6-Trinitrophenylmethylnitramine
TNS	Trinitrostilbene
TNT	Trinitrotoluene
TNT/NC	80 wt% TNT/20 wt% NC
Tritonal	80 wt% TNT/20 wt% aluminum powder
XTX-8003	80 wt% Recrystallized PETN/20 wt% Sylgard 182
XTX-8004	80 wt% RDX/20 wt% Sylgard 182

[a] For transportation only to and from ~~M-~~ DX and ~~WX-~~ ESA-Division ~~GRoups~~ Groups and storage by ~~group~~ Group ~~WX-3~~ ESA-3.
[b] EDC-8 is the United Kingdom's version of XTX-8003.
[c] EDC-28 is the United Kingdom's version of PBX-9407.
[d] EDC-32 is the United Kingdom's version of LX-04.
[e] For shipping, storage, and experimental evaluation of quantities less than 5 g and for assembly of finished charges into test devices only.
[f] For shipping, storage, and analytical evaluation of molding powder and assembly of finished pieces into test devices.
[g] After approval by the Explosives Development Committee.
[h] For shipping, storage, and experimental evaluations on less than 5-g quantities.

FIGURE A-1

CHEMICAL WASTE DISPOSAL REQUEST FORM

Los Alamos
National Laboratory

Chemical Waste Disposal Request

Waste Services Use Only

This form is used to request disposal of chemical **and** radioactive wastes. Mail completed form to Waste Services Group at **MS J579**

Account Information	Name (Print)	Telephone	Z Number	Date

Item Id	Waste Profile Number	Process ID	Shipping Container Information					Waste Information				Description
			Type	Volume	Unit	Tare Weight	Unit	Volume	Unit	Weight	Unit	

Container Types
01 - Bulk (unpackaged)
02 - Metal Drum
03 - Fiber or Plastic Drum
04 - Plastic Bottle or Container
05 - Glass Bottle or Container
06 - Plastic Bag
07 - Fiber or Plastic Box
08 - Wooden Box
09 - Metal Box
10 - Portable Tank
11 - Cylinder
12 - Shield Cask
13 - Other (Specify in Description)

Units for Volume
G - Gallons
L - Liters
F - Cubic Feet
M - Cubic Meters
O - Fluid Ounce
P - Pint
Q - Quart

Units for Weight
P - Pound
K - Kilograms
G - Grams
O - Ounce
T - Tons

Waste Accumulation *(Check all that apply)*
- ☐ < 90 Day Storage Area (Start Date: _____)
- ☐ Satellite Storage Area (Approximate Volume: _____)
- ☐ Rad Dumpster No: _____
- ☐ Security Area

TA
Building
Room

CERTIFICATION STATEMENT: To the best of my knowledge, I certify that the information on this form is correct. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Printed Name	Signature	Z Number	Date

Form 1541 (03/95)

FIGURE A-1

~~CHEMICAL~~ WASTE DISPOSAL REQUEST FORM
(continued)

Page 2 of 2

Item Id	C/NC	Health Physics Information: Container Surface (mrem/hr)	Health Physics Information: 1 Meter Dose (mrem/hr)	Package Surface Contamination (DPM/100 sq. cm): Alpha	Package Surface Contamination (DPM/100 sq. cm): Beta-Gamma	Radionuclide	Amount	Unit	Uncertainty
							E ±		E ±
							E ±		E ±
							E ±		E ±
							E ±		E ±
							E ±		E ±
							E ±		E ±
							E ±		E ±
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							E ±		E ±
							E ±		E ±
							E ±		E ±

C - Compactible NC - Non-compactible

Units for Activity C - Curie M - Grams L - Curies/liter

Form 1541 (03/9

FIGURE A-2

HAZARDOUS WASTE COMPATIBILITY CHART

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
B	Global	Global	No	Change "HSE-8" to "ESH-19".	1	A.1
B	1 of 28	B.1.2.	No	Change "HSE-2" to "ESH-2".	1	A.1
B	2 of 28	B.2.2.	Yes[1]	Delete "Batch waste treatment unit and".	1	A.1
B	2 of 28	B.2.3.	Yes[2]	Change "Figures B-5 and B-6" to "Attachment B-1".	1	B.3
B	3 of 28	B.3.2.	Yes[3]	Change "The annual inspection procedure is the same as the triennial inspection outlined for the TA-50 Batch Waste Treatment Unit Tanks in Section B.1.1. above" to the narrative provided.	1	A.1
B	4 of 28	B.3.3.	No	Change "HSE-7" to "CST-5".	1	A.1
B	4 of 28	B.3.3.	Yes[1]	Change "batch waste treatment unit" to "modular storage unit".	1	A.1
B	4 of 28	B.3.3.	No	Add a "," after "packaging and storage facilities in Area L".	1	A.2
B	4 of 28	B.3.3.	No	Change "In" to "in" before "sumps as well as beams".	1	A.2
B	4 of 28	B.3.4.	Yes[2]	Change "Figures B-7 and B-8" to "Attachment B-1".	1	B.3
B	5 of 28	B.4.2.	Yes[2]	Change "Figures B-3 and B-4" to "Attachment B-1", and move the sentences beginning with "Inspectors" and "loading/unloading" into the previous paragraph.	1	B.3
B	5 of 28	B.4.3.	No	Change "HSE-7" to "CST-13".	1	A.1
B	5 of 28	B.4.3.	No	Change "HSE-2" to ESH-2".	1	A.1
B	5 of 28	B.4.4.	Yes[2]	Change "Figures B-3 and B-4" to "Attachment B-1".	1	B.3
B	6 of 28	B.5.1.	No	Change "Equipment Requirements" to "Internal Communication/Alarm Equipment".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determination Required	Summary of Proposed Change	Modification Class	Class Citation
B	6 of 28	B.5.1.	Yes[1]	Delete "The TA-50 batch waste treatment unit is equipped with telephones, one pull alarm, one automatic thermal alarm, and one automatic smoke alarm. There is an intercom system at each telephone. In the case of an emergency, the nearest source of communication for personnel handling wastes is the intercom/paging systems on each telephone."	1	A.1
B	6 of 28	B.5.1.	No	Break second bullet "One radio-equipped vehicle telephone paging system" into two bullets "On radio-equipped vehicle" and "telephone paging system".	1	A.2
B	7 of 28	B.5.4.	No	Change "ENG-8" to "FSS-21".	1	A.1
B	8 of 28	B.6.	Yes[1]	Delete "batch treatment and".	1	A.1
B	8 of 28	B.6.	No	Change "areas" to "area".	1	A.2
B	9 of 28	Table B-1	Yes[4]	Delete references to Figures B-1 to B-8 and replace with references to the appropriate IRF boxes.	1	B.3
B	10 of 28 through 26 of 28	Figures B-1 through B-8	Yes[5]	Replace existing inspections forms with the revised form and instructions as "Attachment B-1".	1	B.3

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
B	27 of 28, 28 of 28	Appendix A	Yes[1]	Delete Appendix A.	1	A.1

[1] The Batch Waste Treatment Unit (BWTU) was closed pursuant to 20 NMAC 4.1, Pt. V, 264 Subpart G, in 1994. This change in the text is being made to show that the BWTU is not longer a permitted unit.

[2] LANL is replacing the referenced figures with the *Hazardous and Mixed Waste Facility Inspection Record Form* (IRF), which was included in LANL's *RCRA Interim Status Inspection Plan for Mixed Waste Units*. These modifications update the text of Appendix B to address the new IRF.

[3] LANL annually inspects the TA-54 treatment tanks using the same procedures as described for the TA-50 Batch Waste Treatment Unit (BWTU) tank. However, the triennial inspection language in Section B.1.1 was deleted due to closure of the BWTU. This modification reinstates the triennial inspection language as it pertains to annual inspections of the TA-54 treatment tanks.

[4] LANL is replacing Figures B-1 through B-8 with the *Hazardous and Mixed Waste Facility Inspection Record Form* (IRF). This modification updates Table B-1 to reference the boxes of the IRF that apply to each unit. No inspection frequencies are changed by this modification.

[5] This modification replaces Figures B-1 through B-8 with the *Hazardous and Mixed Waste Facility Inspection Record Form* (IRF), which was included in LANL's *RCRA Interim Status Inspection Plan for Mixed Waste Units*. The IRF includes the same information as Figures B-1 through B-8, but in a more concise, easy-to-use format. The use of one form with published directions ensures that all LANL RCRA units are consistently and adequately inspected.

INSPECTION PLAN

PERMIT ATTACHMENT B
NM0890010515-1

INSPECTION PLAN
PERMIT ATTACHMENT B
NM 0890010515-1

B.1 TA-50 MODULAR CONTAINER STORAGE BUILDINGS POTENTIAL PROBLEMS

The modular container storage area is routinely inspected for potential problems with safety and emergency equipment, security devices, containers, and container storage facilities. Potential problems are listed on an inspection checklist. Potential problems include containment failure, fire, explosion, exposure, deterioration of the batch waste treatment unit or construction materials, and system leakage.

B.1.1 Frequency and Content of Inspection

The modular container storage units are inspected weekly by visually inspecting containers for waste leakage and for corrosion.

B.1.2 Remedial Action

Leaks from containers in the modular storage buildings will collect in the 500-gallon sump within the unit. In the case of small spills, vermiculite or other compatible absorbent is poured over the spill area and once the liquid is absorbed, it is swept or shoveled into drums or other appropriate containers. For spills involving larger liquid volumes, free liquids are pumped into drums and absorbent is used as above to remove the remaining liquid. Once liquids are removed, the sump is cleaned using appropriate cleaning agents. All expended cleaning material will be considered hazardous waste and handled accordingly.

In the case of exposure, remedial actions include treating the exposed personnel at the ~~HSE-2~~ ESH-2 Medical Facility and determining the cause of exposure by observation, Laboratory records, and/or sampling.

Similar to hazardous waste releases, the extent of damage from fire and explosion is assessed by visual observations, Laboratory records, and if necessary, sampling. Equipment damaged or contaminated by fire, explosion, or spills is identified by visual inspections and sampling, if necessary.

B.2 TA-50 WASTE INCINERATOR AND ROOM 117 STORAGE AREA POTENTIAL PROBLEMS

The waste incinerator system building and Room 117 storage area are routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, and loading and unloading facilities. Inspections of specific equipment and systems are conducted with a frequency appropriate to current operations, as well as appropriate to the equipment and systems. Potential problems include containment failure, fire, explosion, exposure, equipment deterioration or malfunction, and leaks from the incinerator.

B.2.1 Frequency and Content of Inspection

The waste incinerator, storage area, building and emergency equipment are inspected according to the schedule in Table B-1. Standard operating procedures require that process operators "walk through," their operating areas each hour to visually observe, monitor, and record and leaks, spills, malfunctions or other unusual conditions. The walkthrough and remedial actions will be annotated in the operating log.

B.2.2 Remedial Action

If any defects, deterioration, damage or hazards are discovered during inspection, appropriate remedial actions including repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If a hazard is found imminent or if a hazardous situation already exists, remedial action will be initiated immediately and the unit not reused until corrective action is complete. Any remedial action taken due to an inspection will be noted on the operating log.

Remedial actions in the case of containment failure, fire, explosion, or exposure are identical to the measures at the TA-50 ~~batch waste treatment unit and~~ modular container storage area. See Section B.1.2 above. Should any of these problems occur, the waste incinerator can be shut down at the discretion of the operator. Failure of the HEPA filtration system or wet scrubbers, equipment deterioration or malfunction, or leaks from the waste incinerator will be remedied during and following process shutdown. The process operator will assess the situation and decide upon which shutdown method will be most expeditious and efficient. He will supervise the operating area during the shutdown process.

B.2.3 Inspection Logs

General inspections are conducted by the operating group according to checklists associated with the operating log. Results of the inspection (Attachment B-1 ~~Figures B-5 and B-6~~), the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet. A copy is sent for records to ~~HSE-8~~ ESH-19 and kept for at least three years after all remedial action is complete. In addition, process operators will fill out process data sheets associated with the operations and every four hours when not feeding wastes. These sheets are record of operating conditions and provide evidence that the operator has checked and is aware of the operating status of the system. The time at which entries are made and the actual instrument reading for each variable will be entered into each checklist. When shutdown occurs, the log will state the nature of the shutdown, the time it occurred, and the suspected cause. Once each shift, the shift supervisor will inspect the facility for malfunctions, deterioration, operator error, and discharges. The time, individual, and results of this inspection will be entered in the log. Prestarting inspection procedures, general inspection checklists and the operating log will be kept with the incinerator system during operations. The waste storage room will be inspected using Figures B-5 and B-6.

B.3 TA-54, AREA L WASTE TRANSFER, PACKAGING AND CONTAINER STORAGE FACILITIES AND TREATMENT TANKS

B.3.1 Potential Problems

Area L is routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, treatment tanks, and loading and unloading facilities. Potential problems are listed on the weekly inspection checklist. The container storage areas will be inspected weekly. The treatment tanks will be inspected weekly and after storms to detect any leakage, free board, damage, overflow, or cracks. In addition, the interior of each treatment tank will be inspected yearly for thin spots or excessive corrosion. Prior to the interior inspection, the treatment tank will be emptied by pumping into drums following standard procedures. After it is empty, any liner is removed and the tank must be thoroughly cleaned and checked to be sure it is free of flammable, toxic and corrosive vapors and materials before entry. If this requires steaming, the tank must be cooled after cleaning and the rinse water checked to be sure it is essentially neutral. Any nearby operations considered hazardous to tank entry are shut down. The atmosphere in the tank must be tested for the presence of combustible or toxic vapors and for oxygen content. A sufficient number of standby personnel must be present to give aid in case of trouble. Protective clothing or equipment may be required in some instances. Potential problems at Area L include containment failure, fire, explosion, and exposure.

B.3.2 Frequency and Content of Inspection

Area L is inspected according to the schedule in Table B-1. In addition, the treatment tank's shell and liner will be inspected annually to ensure that the tanks walls and liner have not experienced damage due to corrosion or erosion. ~~The annual inspection precedure is the same as the triennial inspection outlined for the TA-50 Batch Waste Treatment Unit Tanks in Section B.1.1. above.~~ For the annual inspection, the tank KYNAR (@) lining will be tested for pinholes, cracks, or other failures using a Holiday Detector (@) spark test or equivalent. The Holiday Detector (@) works by sweeping an electrically charged brush over the liner surface. If a pinhole or crack is present, the liner no longer insulates the metal tank shell from the current, and a spark is produced, thus identifying the failed surface. The tank shell and liner wall thickness will also be acoustically analyzed annually to determine the extent of deterioration (ASME NDT Section IX). The acoustic analytic analysis utilizes the travel time or changes of wall thickness. Should the liner wall exhibit considerable (unexpected) thinning, the inspection frequency will be increased. The results of the annual inspection will be maintained in the permanent operating record.

Prior to the interior inspection, the treatment tank is emptied by discharging in the normal manner. After it is empty, the tank must be thoroughly cleaned and checked to be sure it is free of flammable, toxic, and corrosive vapors and materials before entry. If this requires steaming, the tank must be cooled after cleaning and the rinse water checked to be sure it is essentially neutral. Any nearby operations considered hazardous to tank entry are shut down. Respiratory protection shall be used as necessary. Protective clothing or equipment may be required in some instances. A sufficient number of standby men must be present to give aid in case of trouble.

B.3.3 Remedial Action

If any defects, deterioration, damage or hazards are discovered during inspection, appropriate remedial actions including repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If a hazard is found imminent or if a hazardous situation already exists, remedial action will be initiated immediately and the unit will be taken out of service until corrective action is complete. Any remedial action taken due to an inspection will be noted on the operating log.

In the case of failure of run-on or run-off control measures, the ~~HSE-7~~ CST-5 Group Leader or his qualified designee will assess the damage by visual observations and sampling and monitoring to determine the type and extent of contamination. Mitigation procedures and repairs, such as sandbagging and building berms, will be instituted immediately. All such action will be entered in the site log.

Remedial action in the case of drum or container failure, fire, explosion, or exposure is handled as described for the TA-50 ~~batch waste treatment unit~~ modular storage unit. In addition, soil and water samples will be taken down gradient from the release. At the transfer, packaging and storage facilities in Area L, releases from drum or container failure collect ~~In~~ in sumps as well as berms.

If leakage, corrosion, overflow or any other damage is detected in the treatment tanks, the contents will be pumped into a drum or another treatment tank. At least 33 empty drums are always available to hold the maximum amount of liquid in a treatment tank in the unlikely event that the tank is completely full and the contents cannot be pumped into another treatment tank. The portable pumps used for emptying the tank are the same pumps used to draw down the tanks and have adequate capacity to fill 55-gallon drums. The pumps and hose used are compatible with the hazardous wastes they handle and are decontaminated after use by flushing with water. The wash water is handled as hazardous waste. The pumps are located at TA-54, Area L.

B.3.4 Inspection Logs

Each inspection is conducted by the operating groups according to the checklist in the inspection log (Attachment B-1 ~~Figures B-7 and B-8~~). Results of the inspection, the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet. A copy is sent to ~~HSE-8~~ ESH-19 for records and kept for at least three years after the completion of all remedial action.

B.4 TA-50 CONCRETE CONTAINMENT STRUCTURE

B.4.1 Potential Problems

The TA-50 concrete containment structures are routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, and loading/unloading facilities. Potential problems are listed on a weekly checklist and include containment failure, fire, explosion, exposure, equipment deterioration or malfunction and leaks.

B.4.2 Frequency and Content of Inspection

The TA-50 Storage and associated equipment are inspected in accordance with the schedule in Table B-1. The weekly inspection looks for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. Inspectors will use the checklist in Attachment B-1. Loading/unloading areas will be inspected daily, when used.

~~Inspectors will use the checklists in Figures B-3 and B-4. Loading/unloading areas will be inspected daily, when used.~~

B.4.3 Remedial action

If any defects, deterioration, damage, spills or hazards are discovered during inspections, appropriate remedial actions including cleanup, repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If an imminent hazard is found or if a hazardous situation already exists, remedial action will be initiated immediately. Any remedial action taken due to an inspection will be noted in the operating log.

In the case of failure of run-on and run-off control measures, the ~~HSE-7~~ CST-13 Group Leader or his qualified designee will assess the damage by visual observations and sampling and monitoring to determine the type and extent of contamination. Mitigation procedures and repairs, such as sandbagging and building berms, will be instituted immediately. All such action will be entered in the site log.

Leaks from containers will collect in the individual sump within the unit. In the case of small spills, vermiculite or other compatible absorbent is poured over the spill area and once the liquid is absorbed, it is swept or shoveled into drums or other appropriate containers. For spills involving larger liquid volumes, free liquids are pumped into drums and absorbent is used as above to remove the remaining liquid. Once liquids are removed, the sump is cleaned using appropriate cleaning agents.

In the case of exposure, remedial actions include treating the exposed personnel at the ~~HSE-2~~ ESH-2 Medical Facility and determining the cause of exposure by observation, Laboratory records, and/or sampling.

Similar to hazardous waste releases, the extent of damage from fire and explosion is assessed by visual observations, Laboratory records, and if necessary, sampling.

Equipment damaged or contaminated by fire, explosion, or spills is identified by visual inspections and sampling, if necessary.

B.4.4 Inspection Logs

Each inspection is conducted by the operating group according to the checklist in Attachment B-1 ~~Figures B-3 and B-4~~. Results of the inspection, the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet. A copy is sent for records to ~~HSE-8~~ ESH-19 and kept for at least three years.

B.5 PREPAREDNESS AND PREVENTION REQUIREMENTS

B.5.1 ~~Equipment Requirements~~Internal Communication/Alarm Equipment

The following internal communication/alarm equipment is available at LANL to provide emergency instruction for rapid evacuation and to initiate emergency response:

- Centrex telephone system
- Medium range radio nets (30-60 miles)
- Limited range radio nets (3-10-miles)
- Telephone/radio paging
- Two-way hand held radios
- Emergency central alarm system
- Mechanical central alarm system

Since this equipment is laboratory-wide, it allows all personnel to get in contact with emergency coordinators in all areas of the laboratory. All hazardous waste handling personnel have immediate access to internal alarms or emergency communication devices.

~~The TA-50 batch waste treatment unit is equipped with telephones, one pull alarm, one automatic thermal alarm, and one automatic smoke alarm. There is an intercom system at each telephone. In the case of an emergency, the nearest source of communication for personnel handling wastes is the intercom/paging systems on each telephone.~~

The TA-50 waste incinerator and storage area is equipped with telephones throughout the facility. A radio with microphones at remote locations is available. Other communication/alarm equipment available at this facility includes:

- One portable radio
- One radio-equipped vehicle ~~telephone paging system~~
- Telephone paging system
- Internal telephone communication line
- Two-channel work station intercoms for direct communication from process area to offices and labs.

- Eleven pull alarms
- Two automatic thermal alarms

The trailer at Area L is equipped with a telephone. A radio-equipped vehicle is available for use at Area L. In addition, Area L is equipped with an alarm system and intercom to area G for evacuation. These are the nearest communication sources for use in the case of an emergency. Because of the proximity of the TA-50 Storage Pads and modular storage units to other TA-50 facilities and because only contained waste is handled at these facilities, individual emergency equipment is not required.

B.5.2 External Communication/Alarm Equipment

The Laboratory has established external communication capabilities with the Los Alamos Police Department and the Los Alamos County Hospital. The following external communication/alarm equipment is available at LANL:

- Centrex telephone system
- Private telephone lines (if Centrex fails)
- Medium range radio nets (30-60 miles)
- Limited range radio nets (3-10 miles)
- Two national Warning System Stations (NAWAS)
- Direct lines from Emergency Operations Centers to KRSN (local radio station)

B.5.3 Emergency Equipment

A list of emergency equipment available at LANL, including types of equipment, locations, and contact phone numbers is shown in Permit Attachment D.

Emergency vehicles are inspected quarterly, according to the schedule in Table B-1. Medical supplies include self-contained breathing apparatuses, wheel chairs, manual resuscitation, portable oxygen units, blankets, blood supplies, and medical kits.

B.5.4 Water for Fire Control

The Department of Energy (DOE) is responsible for overall water production, transmission, and storage for the Laboratory and Los Alamos County. Storage capacity is adequate to provide water for fire fighting purposes.

Hydrant flow tests and block valve inspections are performed annually. Pressure regulating valves are inspected and adjusted every 60 days. Flow rates for hydrants are specified by ~~ENG-8~~ FSS-21, an

experienced fire protection engineering staff, and are dependent upon site needs, including size of building and presence of sprinkler systems.

B.6 AISLE SPACE REQUIREMENTS

Aisle space between waste containers at all container storage areas is inspected weekly to insure it is adequate to provide access for inspection purposes, and movement of personnel, containers, and equipment.

There are no ramps provided for fork lifts or drum handling equipment at the TA-50 ~~batch treatment and~~ modular container storage ~~areas~~ area. Drums are placed in the container storage using drum slings or hydraulically powered drum tongs on a forklift.

Aisles between rows of drums at the Area L transfer, packaging and storage facilities and at the TA-50 storage pads are maintained at a minimum width of two feet to permit access for inspection and handling. Much of the bermed or curbed areas are ramped to facilitate access of forklifts and drum handling equipment.

TABLE B-1
INSPECTION SCHEDULE

MODULAR STORAGE UNITS	
Daily when loading or unloading	~~Figures B-1, B-7~~Inspection Record Form Boxes 7, 8, 9, 10, 11, 12, 13, 14, 18, 22, and 23
Weekly	~~Figures B-2, B-8~~Inspection Record Form Boxes 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32
CONCRETE CONTAINMENT STRUCTURES	
Daily when loading or unloading	~~Figures B-3, B-7~~Inspection Record Form Boxes 7, 8, 9, 10, 11, 12, and 18
Weekly	~~Figures B-4, B-8~~Inspection Record Form Boxes 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32
CONTROLLED AIR INCINERATOR	
Hourly when burning hazardous waste	Log entry
Daily when burning hazardous waste	~~Figure B-5~~Inspection Record Form Boxes 7, 8, 22, 33, and 34
Weekly	~~Figure B-6~~Inspection Record Form Boxes 9, 12, 13, 14, 15, 16, 20, 21, 22, 23, 26, and 32
C.A.I. STORAGE AREA	
Daily when loading or unloading	~~Figure B-5~~Inspection Record Form Boxes 7, 8, 22, 33, and 34
Weekly	~~Figure B-6~~Inspection Record Form Boxes 9, 12, 13, 14, 15, 16, 20, 21, 22, 23, 26, and 32
WASTE TRANSFER/STORAGE UNIT	
Daily when loading or unloading	~~Figure B-7~~Inspection Record Form Boxes 7, 8, 9, 10, 11, 12, and 18
Weekly	~~Figure B-8~~Inspection Record Form Boxes 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32

TABLE B-1
INSPECTION SCHEDULE

SOLID WASTE STORAGE AREA	
Daily when loading or unloading	~~Figure B-7~~Inspection Record Form Boxes 7, 8, 9, 10, 11, 12, and 18
Weekly	~~Figure B-8~~Inspection Record Form Boxes 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32
TA-54 AREA L WASTE TREATMENT/STORAGE TANKS	
Daily when in use with hazardous waste	~~Figure B-7~~Inspection Record Form Boxes 7, 8, 9, 10, 11, 12, and 18
Weekly	~~Figure B-8~~Inspection Record Form Boxes 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32
Annually	Special Report
After Storms	Special Report
EMERGENCY VEHICLES	
Quarterly	Special Report
FIRE CONTROL SYSTEM	
Annually	Special Report

~~FACILITY: 50 Batch Plant (Includes sStructures 114, 137, 138, and portaberm)~~

~~FACILITY TYPE: T.S. 19____ MONTH/DAY MONTH/DAY~~
~~WEEK OF_____ THRU_____~~

~~DAILY PARTS I, II, III To be completed every day of operation~~

~~PART I. Enter the data in column for day inspected.~~

~~DAY~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~DATE~~							
~~TIME~~							
~~INSPECTOR~~							

~~PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.~~

~~ITEM~~	~~INSPECTED FOR~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~**(UN) LOADING AREA TANKS/CONTAINERS~~	~~SPILLS AND DETERIORATION~~							
~~**CONTAINERS STORAGE~~	~~SEGREGATED ACCORDING TO COMPATIBILITY~~							
~~**CONTAINERS AND TANKS~~	~~CLOSED, LABELED AND DATED~~							
~~COMMUNICATION EQUIPMENT~~	~~PROPERLY FUNCTIONING~~							
~~TANK MONITORING EQUIPMENT~~	~~DISCHARGE CONTROLS, TEMP/PRESSURE GAUGES LEVELS (%FULL) (OK?)~~							
~~**AREA AROUND TANKS/ CONTAINERS SECONDARY CONTAINMENT~~	~~SPILLS, DAMAGE STANDING WATER~~							
~~ABOVE GROUND PARTS OF TANK SYSTEM~~	~~INTEGRITY, LEAKS CORROSION~~							

~~PART III. For any action noted in PART II, describe below: action required, action taken, date.~~

~~WEEKLY~~ ~~To be completed on the first working day of the week.~~

~~INSPECTOR:~~ _____ ~~DATE:~~ _____ ~~TIME:~~ _____

~~PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action\Date" column.~~

~~ITEM~~	~~INSPECTED FOR~~	~~CONDITION (OK OR AR*)~~	~~ACTION AND DATE ACTION TAKEN~~
~~STRUCTURAL INTEGRITY OF CONTAINERS/TANKS~~	~~DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPE, FLANGES~~		
~~COVER/LID OF CONTAINERS~~	~~CLOSED AND SECURED~~		
~~WARNING SIGNS~~	~~POSTED & READABLE (BILINGUAL)~~		
~~LABELS~~	~~"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS~~		
~~ACCUMULATION DATE (<90 DAY STORAGE)~~	~~PRESENT ON ALL CONTAINERS/TANKS NONE EXCEED 90 DAYS FROM START~~		
~~SECURITY~~	~~CONDITION OF GATES/LOCKS~~		
~~EMERGENCY EQUIPMENT~~	~~FIRE EXTINGUISHERS, EYE WASH, SHOWERS, RESPIRATORS~~		
~~SPILL CONTROL EQUIPMENT~~	~~PRESENT, GOOD WORKING ORDER~~		
~~SITE LIGHTING~~	~~FUNCTIONS PROPERLY~~		
~~HOOD~~	~~FUNCTIONING~~		

~~REMARKS:~~

~~* Action required~~ ~~** Includes all associated storage facilities.~~
~~For waste removal call HSE-7 at 667-6095 at least 10 working day prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations, contact Tony Grieggs, 5-0451 or Jim White, 5-0677.~~
~~cc: Tony Grieggs, HSE-8, MS K490 (Copies only, maintain orginial original for a minimum of three (3) years. Last Revision: April 18, 1989~~

~~FACILITY: 50-139, 140~~

~~FACILITY TYPE: T.S. 19____ MONTH/DAY MONTH/DAY~~

~~DAILY PARTS I,II,III To be completed every day of operation~~

~~PART I. Enter the data in column for day inspected.~~

~~DAY~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~DATE~~							
~~TIME~~							
~~INSPECTOR~~							

~~PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.~~

~~ITEM~~	~~INSPECTED FOR~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~**(UN) LOADING AREA~~	~~SPILLS AND~~							
~~TANKS/CONTAINERS~~	~~DETERIORATION~~							
~~COMMUNICATION~~	~~PROPERLY~~							
~~EQUIPMENT~~	~~FUNCTIONING~~							
~~EYE WASH~~	~~LEAKS FUNCTIONING~~							
~~SAFETY SHOWERS~~								

~~PART III. For any action noted in PART II, describe below: action required, action taken, date.~~

~~WEEKLY~~ ~~To be completed on the first working day of the week.~~

~~INSPECTOR:~~ _____ ~~DATE:~~ _____ ~~TIME:~~ _____

~~PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.~~

~~ITEM~~	~~INSPECTED FOR~~	~~CONDITION (OK OR AR*)~~	~~ACTION AND DATE ACTION TAKEN~~
~~STRUCTURAL INTEGRITY OF CONTAINERS~~	~~DETERIORATION AND LEAKS~~		
~~COVER/LID OF CONTAINERS~~	~~CLOSED AND SECURED~~		
~~WARNING SIGNS~~	~~POSTED & READABLE (BILINGUAL)~~		
~~LABELS~~	~~"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS~~		
~~SECURITY~~	~~CONDITION OF FENCE/GATES/LOCKS~~		
~~SITE LIGHTING~~	~~FUNCTIONS PROPERLY~~		
~~CONTAINMENT STRUCTURES~~	~~INTEGRITY, STANDING WASTE~~		
	~~EROSION~~		
~~CONTAINER STORAGE~~	~~SEGREGATED ACCORDING TO COMPATIBILITY, AISLE SPACE~~		
~~FIRE EXTINGUISHERS SPILL CONTROL GEAR~~	~~PRESENT, IN GOOD WORKING ORDER~~		
~~HOSE BIB~~	~~LEAKS, FUNCTIONING~~		
~~ROAD/WORK SURFACES~~	~~CRACKS~~		
~~WIND SOCK~~	~~DAMAGE, FUNCTIONING~~		
~~PALLETS~~	~~INTEGRITY, DAMAGE~~		

~~REMARKS:~~

~~*Action required~~ ~~**Includes all associated storage facilities.~~

~~For waste removal call HSE 7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations contact Tony Grieggs, 5-0451 or Jim White, 5-0677.~~

~~cc: Tony Grieggs, HSE-8 MS K490 (Copies only, maintain original for a minimum of three (3) years. Last Revision: April 18, 1989~~

~~FACILITY: 50-37 (incinerator) includes room 117~~

~~FACILITY TYPE: T.S. 19 MONTH/DAY MONTH/DAY~~

~~DAILY PARTS I,II,III To be completed every day of operation~~

~~PART I. Enter the data in column for day inspected.~~

~~DAY~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~DATE~~							
~~TIME~~							
~~INSPECTOR~~							

~~PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.~~

~~ITEM~~	~~INSPECTED FOR~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~**(UN) LOADING AREA~~	~~SPILLS AND DETERIORATION~~							
~~TANK BY PASS~~	~~LEAKS, DETERIORATION~~							
~~COMMUNICATION EQUIPMENT~~	~~PROPERLY FUNCTIONING~~							
~~PUMPS, VALVES PIPES~~	~~CONDITION LEAKS~~							
~~INCINERATOR EQUIP.~~	~~DETERIORATION MALFUNCTION~~							
~~TANK DISCHARGE CONTROLS, WASTE FEED CUTOFF (TANK)~~	~~ALL OVERFILL & SPILL CONTROL EQUIP. IN GOOD WORKING ORDER~~							
~~TANK MONITORING EQUIPMENT~~	~~OPERATING PROPERLY~~							
~~CONTAINMENT STRUCTURES~~	~~INTEGRITY, STANDING WATER CORROSION~~							

~~PART III. For any action noted in PART II, describe below: action required, action taken, date.~~

~~WEEKLY~~ ~~To be completed on the first working day of the week.~~

~~INSPECTOR:~~ _____ ~~DATE:~~ _____ ~~TIME:~~ _____

~~PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.~~

~~ITEM~~	~~INSPECTED FOR~~	~~CONDITION (OK OR AR*)~~	~~ACTION AND DATE ACTION TAKEN~~
~~STRUCTURAL INTEGRITY OF CONTAINERS/TANKS~~	~~DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPES, FLANGES~~		
~~TANKS AND CONTAINERS~~	~~CLOSED AND SECURED~~		
~~AISLE SPACE BETWEEN CONTAINERS~~	~~AT LEAST ONE (1) FOOT BETWEEN CONTAINERS~~		
~~WARNING SIGNS~~	~~POSTED AND READABLE (BILINGUAL)~~		
~~LABELS~~	~~"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS~~		
~~SECURITY~~	~~CONDITION OF GATES/LOCKS~~		
~~EMERGENCY EQUIPMENT~~	~~FIRE EXTINGUISHERS, EYE WASH, SHOWERS, RESPIRATORS~~		
~~SITE LIGHTING~~	~~FUNCTIONS PROPERLY~~		
~~TANK LEVEL ALARM~~	~~FUNCTIONING~~		
~~PROCESS GLOVES~~	~~TEARS, DETERIORATION~~		
~~VENTILATION SYSTEM~~	~~FUNCTIONING PROPERLY~~		
~~SCBA GEAR~~	~~DETERIORATION, FUNCTIONING~~		
~~PROCESS FLOOR~~	~~CRACKS, SPALLING, COATING~~		
~~AISLE SPACE~~	~~CLEAR~~		

~~REMARKS:~~

~~*Action required~~ ~~**Includes all associated storage facilities.~~

~~For waste removal call HSE 7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations contact Tony Grieggs, 5-0451 or Jim White, 5-0667.~~

~~cc: Tony Grieggs, HSE 8, MS K490 (Copies only, maintain original for a minimum of three (3) years. Last Revision: April 18, 1989~~

~~FACILITY: 54-AREA-L~~

~~FACILITY TYPE: T.S. 19 MONTH/DAY MONTH/DAY~~

~~DAILY PARTS I,II,III To be completed every day of operation~~

~~PART I. Enter the data in column for day inspected.~~

~~DAY~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~DATE~~							
~~TIME~~							
~~INSPECTOR~~							

~~PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.~~

~~ITEM~~	~~INSPECTED FOR~~	~~S~~	~~M~~	~~T~~	~~W~~	~~TH~~	~~F~~	~~S~~
~~**(UN) LOADING AREA~~	~~SPILLS AND~~							
~~TANKS/CONTAINERS~~	~~DETERIORATION~~							
~~COMMUNICATION~~	~~PROPERLY~~							
~~EQUIPMENT~~	~~FUNCTIONING~~							
~~TANKS (ALL ABOVE)~~	~~DISCHARGE CONTROLS CONDITION,~~							
~~GROUND PORTIONS)~~	~~LEAKS LEVEL (6" FREEBOARD)~~							
~~SURFACE IMPOUNDMENTS~~	~~FREEBOARD (2 FT)~~							
~~AND CONTAINMENT~~	~~SUDDEN DROPS IN LEVEL~~							
~~PORTA BERM~~	~~LEAKS CONDITION~~							
~~RUN ON/OFF CONTROL~~	~~INTEGRITY, EROSION PONDING~~							
~~EYE WASH~~	~~LEAKS FUNCTIONING~~							
~~SAFETY SHOWER~~								

~~PART III. For any action noted in PART II, describe below: action required, action taken, date.~~

~~WEEKLY~~ ~~To be completed on the first working day of the week.~~

~~INSPECTOR:~~ _____ ~~DATE:~~ _____ ~~TIME:~~ _____

~~PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.~~

~~ITEM~~	~~INSPECTED FOR~~	~~CONDITION (OK OR AR*)~~	~~ACTION AND DATE ACTION TAKEN~~
~~STRUCTURAL INTEGRITY OF CONTAINERS/TANKS~~	~~DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPES, FLANGES~~		
~~COVER/LID OF CONTAINERS~~	~~CLOSED AND SECURED~~		
~~WARNING SIGNS~~	~~POSTED & READABLE (BILINGUAL)~~		
~~LABELS~~	~~"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS~~		
~~ACCUMULATION DATE (<90 DAY STORAGE)~~	~~PRESENT ON ALL CONTAINERS/TANKS NONE EXCEED 90 DAYS FROM START~~		
~~RUN ON CONTROL (AREA L, H LANDFILL)~~	~~INTEGRITY, ERROSION PONDING~~		
~~COVER INTEGRITY (AREA L, H LANDFILL)~~	~~EROSION, SUBSIDENCE WATER INTRUSION~~		
~~SECURITY~~	~~CONDITION OF FENCE/GATES/LOCKS~~		
~~SITE LIGHTING~~	~~FUNCTIONS PROPERLY~~		
~~CONTAINMENT STRUCTURES~~	~~INTEGRITY, STANDING WATER VEGETATION, EROSION~~		
~~CONTAINER STORAGE~~	~~SEGREGATED ACCORDING TO COMPATIBILITY, AISLE SPACE~~		
~~HOSE BIB~~	~~LEAKS, FUNCTIONING~~		
~~STORAGE SHED~~	~~FLOOR DAMAGE, LIQUID~~		
~~ROAD/WORK SURFACES~~	~~CRACKS~~		
~~WIND SOCK~~	~~DAMAGE, FUNCTIONING~~		
~~SHAFT COVER AND RAIL~~	~~DAMAGE~~		
~~PALLETS~~	~~INTEGRITY, DAMAGE~~		
~~TREATMENT TANKS~~	~~LEAKS, DAMAGE~~		
~~REFRIGERATOR~~	~~DAMAGED CONTAINERS~~		
~~SPILL CONTROL FIRE EQUIPMENT~~	~~PRESENT, IN GOOD WORKING ORDER~~		

~~REMARKS:~~

~~*Action required~~ ~~**Includes all associated storage facilities.~~

~~For waste removal call HSE-7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspection or regulations, contact Tony Grieggs, 5-0461 or Jim White, 5-0667.~~

~~cc: Tony Grieggs, HSE-8, MS K490 (Copies only, maintain originals for a minimum for three (3) years. Last Revision: April 18,1989~~

ATTACHMENT B-1

Hazardous and Mixed Waste Facility

Inspection Record Form

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

[1]FACILITY	[2]☐ <90 DAY, GENERATOR STORAGE ☐ TREATMENT, STORAGE, DISPOSAL	[3]START DATE	[4]END DATE
[5]☐Containers ☐Landfill ☐Surface Impoundment ☐Waste Pile ☐Thermal Treatment ☐Chem/Phys /Bio. Treat. ☐Incinerator ☐Misc. Unit ☐Tank ☐UST ☐Land Treatment ☐Underground Inj.			

PART I - Enter condition of item inspected (OK or AR [action required]) in column for day inspected.

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
[6]No use	Check if no waste is present							
[7](Un)loading area tanks/ containers	Spills and deterioration							
[8]Communication equipment (phone/radio/alarms)	Properly functioning							
[9]Tanks (all above ground portions) monitoring data	Discharge controls condition, leaks, level (6" freeboard), corrosion							
[10]Surface impoundments and containment	Freeboard (2 ft) sudden drops in level							
[11]Porta berm	Leaks condition							
[12]Eye wash safety showers	Leaks, functioning							
[13]Structural integrity of containers/tanks, valves, pipes, and flanges	Deterioration and leaks, corrosion, damage							
[14]Cover/lid of containers	Closed and secured							
[15]Warning signs	Posted and readable (bilingual)							
[16]Labels	"HAZARDOUS WASTE" present on all containers/tanks							
[17]Accumulation start date (<90 day storage)	Present on all containers, tanks, none exceed 90 days							
[18]Run on/off control (Area L, G, H, P) landfills, detonation pads	Integrity, erosion, ponding							
[19]Cover integrity (Area L, G, H, P) landfills	Erosion, subsidence water intrusion							
[20]Security	Condition, fence/gates/locks							

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM, Continued

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
[21]Site lighting	Functions properly							
[22]Containment structures	Integrity, standing water, vegetation, erosion							
[23]Management of containers	Segregated according to compatibility, 2 ft aisle space							
[24]Hose bibs, water supply	Leaks, functioning							
[25]Storage Shed (Area L)	Floor damage, liquid							
[26]Road/work surfaces	Cracks/potholes							
[27]Wind sock	Damage, functioning							
[28]Shaft cover and rail	Present, damage							
[29]Pallets	Integrity, damage							
[30]Treatment tanks	Proper operation, leaks							
[31]Refrigerator	Damaged containers							
[32]Spill control, fire, and emergency equipment	Present and in good working order							
[33]Incinerator emergency waste feed cutoff/alarms	Proper operating condition of all shutdown controls							
[34]Incinerator pumps valves, pipes, monitoring controls	Leaks/spills/tampering operating within specifications							
[35]Pressure vessels (S-site)	Deterioration and sand condition							
[36]Oil burn pans (S-site)	Deterioration and leaks							
[37]HE burn pads (S-site)	Deterioration, vegetation, sand condition, erosion							
[38]Radiation safety	Signs, monitoring (α β γ ^3H)							
[39]Date	Date of inspection							
[40]Time	Time of inspection							
[41]Inspector	Initials of inspector							

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM, Continued

PART II - For any AR (Action Required) in PART I above, describe below: action required, action taken, date of action. Attach additional sheets if necessary.

*INSPECTOR	*GROUP	*DATE	*TIME

Part I

1. FACILITY: Location information including Technical Area (TA), building, and room if applicable. Other location descriptors may be necessary. (e.g., TA-59-3-114 or TA-59-1-S). Dock)

2. <90 Day, Generator Storage should be checked if this location is intended for operation in accordance with generator requirements for storage of hazardous waste for less than 90 days.

   Treatment, Storage, Disposal should be checked if this location is listed in LANL's Hazardous Waste Facility Permit or Part A Application as a permitted or interim status TSD operation.

3. START DATE: The date of the first inspection for the week on that inspection sheet. (Usually the first working day of the week)

4. END DATE: The date of the last inspection for the week on that inspection sheet. (Usually the last working day of the week, however, if handling of hazardous waste occurs during the weekend inspections must be conducted.)

5. Check the appropriate box for the type of operation. Several boxes may be checked if necessary for those locations where inspections are combined on a single sheet. You must have prior approval from ESH-19 to combine inspections for more than one unit.

6. NO USE: May be checked if the unit did not store, treat, dispose, or otherwise handle hazardous waste for the day/week in question. The individual responsible for the inspection must then only complete boxes 39, 40, 41 for that day/week. If any hazardous waste is subsequently placed at the site for any reason, a full inspection must be performed immediately, and every working day thereafter until all waste is properly disposed of.

7. Loading and unloading areas must be inspected daily when in use for signs of damage or deterioration that may lead to an accident or spill. This includes asphalt pads, and areas where containers or tanks are handled or contents thereof are transferred.

8. Communication equipment: Includes all telephones, two-way radios, and alarms for the area being inspected. Consult with ESH-19 to determine what equipment is necessary at any particular location.

9. For tanks systems used for treatment or storage of hazardous waste, all above ground portions of the tank system, including any and all ancillary plumbing, must be inspected daily for signs of leaking, corrosion, deterioration, or improper operation. Tanks must be operated with a minimum freeboard of 6 inches. If the tank system includes discharge controls, overtopping controls, tank level alarms, or other monitoring equipment including leak detection equipment, all controls and relevant data must be checked to ensure they are operating properly and that operation is within design specifications for the system.

10. Surface impoundments must be operated with a minimum of 24 inches (60 cm) of freeboard from the top of the dike or berm to the surface of the waste therein. Inspectors must look for signs of

leaks, deterioration, and erosion of dikes and berms, and any associated plumbing or valves. These could include dying vegetation, guilies and sudden changes in level.

11. For those locations where inflatable "Porta-Berms" are used as secondary containment for tanks and containers of hazardous waste, inspectors must ensure that they are adequately inflated. Inspectors must also check for the presence of liquids in the containment unit which could indicate leaks or spills of hazardous waste. All monitoring and leak detection systems must also be checked.

12. Where required, eye-wash and safety showers must be inspected to ensure proper operating condition. Outside locations must be checked for freezing.

13. All containers and tanks must be checked for structural integrity, leaks, corrosion, or damage. This item includes checking condition of all construction materials, fixtures, seams, and auxiliary equipment. See 9 above.

14. All tanks and containers used for treating or storing hazardous waste must have the cover or lid securely in place. Containers are not considered to be closed unless the lid/cover is fastened in the manner the manufacturer originally intended.

15. Required signs must be readable and prominently posted. TSD facilities and <90 day storage areas must be equipped with bilingual (english/spanish) signs with the legend "DANGER UNAUTHORIZED PERSONNEL KEEP OUT." TSDs must be identified with signs that read "HAZARDOUS WASTE STORAGE AREA." <90 day storage areas must be identified with a sign with the legend "<90 DAY HAZARDOUS WASTE STORAGE AREA."

16. All containers and tanks must be labeled with the words "HAZARDOUS WASTE" and with other words that identify the contents. Mixed waste must also be labeled as "RADIOACTIVE."

17. All containers and tanks of hazardous waste in TSDs or <90 day storage areas must be marked with the accumulation start date. At TSDs, containers without dates must be dated when they arrive at the facility. At <90 day storage areas, containers must be marked with the accumulation start date at the time the container first receives any waste. For <90 day storage areas, no containers may exceed 90 days from accumulation start date to the time they are delivered to a permitted treatment, storage, or disposal unit. Transportation is by CST-5 or its representatives only.

18. Landfills and detonation pads must have run-on and run-off controls inspected wherever present. Leachate collection systems, where present, must also be inspected. Items to be inspected for are proper operating condition, damage, erosion, contaminant migration, ponding, etc. Detonation pads must be inspected for unburned or undetonated explosives, ordnance, and debris.

19. Landfill covers must be inspected at least weekly and after storms for evidence of erosion, subsidence, and water intrusion.

20. Site security must be verified. Items such as fences, gates, locks, etc. should be checked for proper condition and adequacy.

21. Site lighting must be adequate to prevent accidents related to hazardous waste operations and for any other night operations that may take place within the boundaries of the hazardous waste unit.

22. Secondary containment structures for hazardous waste operations must be inspected to verify proper operating condition and to ensure adequate capacity. Structures must also be inspected for the presence of standing water or hazardous waste. For incinerators and certain operations at TA-55, secondary containment includes inspections of gloves and gloveboxes, hoods, and ventilation systems where necessary.

23. All hazardous waste containers holding materials that may be incompatible with any other materials at that location must be separated from those materials by dikes, berms, or other physical barriers to prevent a possible reaction. All containers of hazardous waste must be stored in a manner that ensures a minimum of 2 feet of aisle space between containers. Drums containing free liquids or those holding hazardous waste (excluding mixed wastes) may not be stacked over two high.

24. TSD facilities must have water at adequate volume and pressure for fire protection available. Hose bibs should be inspected for proper operating condition and adequate pressure. Outside water supplies must be checked for freezing.

25. The storage shed at Area L must be inspected for damage, free liquids that might indicate a leak, and chemical compatibility of materials stored therein.

26. Road and work surfaces, process floors, or other work surfaces at TSDs must be inspected for damage or erosion that could lead to a spill or accident, and for adequate secondary containment.

27. Wind socks, where required, at TSDs must be inspected to ensure that they are present and in proper operating condition.

28. Disposal shafts and shafts used for retrievable storage should have their covers securely in place and guard rails must be installed and in good condition.

29. Hazardous waste containers at TSDs and <90 day storage areas must be stored on pallets if they are stored outside without a roof.

30. Hazardous waste treatment tanks must be operated within design specifications and in accordance with SOPs and work plans. Tanks must be inspected for leaks or damage prior to operation.

31. Refrigerators used for storing hazardous waste, or samples thereof, must be inspected for proper operating condition and leaking or damaged containers.

32. Hazardous waste TSDs and <90 day storage areas must have adequate fire and spill control equipment for the types and volumes of waste present. Equipment must be present, in good working order, and appropriate for the material in question.

33. Incinerator waste feed cutoffs, emergency shutdown controls, and associated alarms or warning systems must be inspected for proper operating condition.

34. Incinerators, ancillary plumbing and equipment, and all monitoring controls must be inspected to ensure that they are in proper operating condition, and are being operated within design specifications. Inspectors must also look for evidence of leaks, corrosion, spills, or tampering.

35. Pressure vessels must be inspected for signs of deterioration or damage. Condition of the sand and loading must also be checked to ensure adequacy.

36. Oil burn pans must be inspected for deterioration, damage, or leaks. Inspectors must also inspect for unburned explosives and debris.

37. HE burn pads must be inspected for deterioration, damage, leaks, or vegetation that could catch fire. Condition of the sand must also be checked. Inspectors must also inspect for unburned explosives and debris.

38. Radioactive materials must be properly placarded, labeled, and stored within controlled areas. Containers should be monitored/swiped for outside contamination if suspected and all leaks or spills must be monitored to ensure adequate cleanup.

39. Inspectors will record the date of the current inspection.

40. Inspectors will record the time of the current inspection.

41. Inspectors will initial each daily inspection.

Part II

Inspectors must explain in detail, any deficiency noted above. Items to be included are: type of problem, any action taken, and the date/time of the action. Additional sheets may be attached as necessary.

42. Signature of individual performing inspection.
43. Organization responsible for this location.
44. Date record was signed and completed.
45. Time record was signed and completed.

~~PERMIT ATTACHMENT B~~

~~APPENDIX A~~

~~RESPIRATORY PROTECTION EQUIPMENT PRACTICES FOR THE CHEMICAL BATCH TREATMENT PLANT~~

~~1. INTRODUCTION~~

~~The use of respiratory equipment is necessary for the safety and well being of Group HSE-7 employees engaged in certain waste treatment operations. Respiratory protection equipment is required where effective engineering controls are not yet feasible or where equipment failures or malfunctions could cause hazardous work environments. The Group HSE-7 Plant Operations Section Respiratory Practices Program is in accordance with ANSI Standard Z88.2-1969, Practices for Respiratory Protection and the respirator training program of Group HSE-5.~~

~~2. SCOPE~~

~~These respiratory protection procedures shall pertain to all Group HSE-7 liquid waste facilities, equipment and operations which may generate potentially hazardous atmospheres involving toxic materials or oxygen deficiencies.~~

~~3. RESPONSIBILITIES~~

~~The Section Leader for Liquid Waste Operations or the Alternate is responsible for assuring that respiratory protection practices are performed in accordance with the respiratory protection practices outlined in this SOP and any incidents involving the use of respiratory equipment must be reported immediately to Group HSE-5.~~

~~HSE-7 personnel shall inspect the self contained breathing apparatus (SCBA's) periodically; the interval between inspections can be as individually desired, but must not exceed one month. Each inspection must be signed and dated with the breathing air cylinder PSI marked on the inspection sticker. A SCBA inspection form must be completed and sent to HSE-5 MS486. An inspection and donning procedure is available in each SCBA carrying case. SCBA's shall also be inspected after each use. Group HSE-5 shall be notified immediately of any respirator defects, and the SCBA unit shall be replaced. HSE-5 shall also be notified when the SCBA has been used so that the breathing air tank is immediately replaced. The HSE-1 HPT shall insure that each respirator user has a current respirator authorization card for the type of respirator that is worn. The HSE-1 HPT shall examine the photo on the respirator authorization card to determine if additional facial hair is present. Additional facial hair voids the respirator authorization card. If this situation occurs, the employee shall not be allowed to wear the respirator or enter any hazardous environment and Group HSE-5 shall be notified immediately to pick up the respirator authorization card.~~

~~Each employee shall comply with all health and safety regulations (verbal or written) and shall report any incident involving the improper utilization of respiratory protective equipment immediately to the supervisor.~~

~~4. MATERIAL, OPERATION AND EQUIPMENT CONTROLS~~

~~Full facepiece air purifying respirators with high efficiency,v filter are not approved for emergency situations or in environments containing toxic gases/vapors or in oxygen deficient environments (< 19.5% oxygen by volume). The respirator and canister shall be suited to the contaminant. If there are any questions, contact Group HSE 5.~~

~~SCBA's are approved for use in oxygen deficient environments and hazardous concentrations of toxic materials. If the environment contains materials which may be readily absorbed through the skin, an impervious suit is also required.~~

~~Possible emergencies would include:~~

- ~~chemical leaks or spills~~
- ~~smoke~~
- ~~emergency entry into a confined space~~

~~The MSA Model 401 utilizes a high pressure portable air tank which provides a high air flow rate to meet breathing demands during extreme exertion. Generally these units supply breathing air for up to 30 minutes of activity and are equipped with an audible alarm to indicate when the breathing supply is low. The air used for SCBA's must meet the strict purity requirements of the Compressed Gas Association Specification G7.1 for Type I, Class D Breathing Air. Group HSE 5 has facilities available for filling these air tanks with air that meets these purity requirements.~~

~~5. PERSONNEL CONTROLS~~

~~Each respirator user shall have completed the comprehensive respirator training program (including quantitative fitting for air purifying respirators) conducted by Group HSE 5 and have in his/her possession a current respirator authorization card for the type of respiratory equipment that is worn. To prevent accumulation of dirt on the respirator, it should be cleaned after each use with the packets provided at the respirator fitting office. Always inspect air purifying respirators before and after use. Any deterioration shall be reported to the supervisor, and the respirator shall be replaced.~~

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
C	N/A	N/A	No	No class I modifications proposed due to existing rewrite of the training plan submitted and pending approval from NMED.	N/A	N/A

PERSONNEL TRAINING

PERMIT ATTACHMENT C
NM0890010515-1

NO CLASS 1 MODIFICATIONS PROPOSED

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
D	N/A	N/A	No	No class I modifications proposed due to existing rewrite of the contingency plan submitted and pending approval from NMED.	N/A	N/A

CONTINGENCY PLAN

PERMIT ATTACHMENT D
NM0890010515-1

NO CLASS 1 MODIFICATIONS PROPOSED

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.1	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.1	1 of 16	E.1.3.2.	No	Change "Industrial Hygiene Group, HSE-5" to "Industrial Hygiene and Safety Group, ESH-5".	1	A.1
E.1	2 of 16	E.1.3.2.	No	Change "offsite" to "off site" (two times).	1	A.2
E.1	2 of 16	E.1.3.2.	No	Change "Director" to "Secretary".	1	A.1
E.1	3 of 16	E.1.5.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.1	3 of 16	E.1.5.	No	Change "HSE-8 Regulatory Compliance Section" to "ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.1	3 of 16	E.1.6.1.	No	Change "E.3.6.1" to "E.1.6.1".	1	A.2
E.1	4 of 16	E.1.6.1.1.	No	Change "E.3.6.1.1" to E.1.6.1.1".	1	A.2
E.1	8 of 16	E.1.7.	No	Delete the duplicate language as shown.	1	A.2
E.1	8 of 16	E.1.8.	No	Change "Director" to "Secretary".	1	A.1
E.1	10 of 16	Table E.1.1	No	Change "EID" to "NMED".	1	A.1
E.1	10 of 16	Table E.1.1.	No	Change "EID" to "NMED".	1	A.1, A.2
E.1	11 of 16	Table E.1.2.	Yes[1]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.1	11 of 16	Table E.1.2.	Yes[1]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a

[1] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.1
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.1
NM 0890010515-1

E.1 TECHNICAL AREA 16 INDUSTRIAL INCINERATOR

The industrial incinerator is located outdoors in the northeastern part of TA-16 (Figure E.1.1) and is equipped for combustion of potentially high explosive (HE) contaminated trash and machine oils. The incinerator consists of a primary combustion chamber, a secondary combustion chamber, and a settling chamber. Both primary and secondary chambers are equipped with gas/oil-fired burners supplied by small volumes of waste oil and propane. The outer shell is fabricated from hot-rolled carbon steel and is mounted on a four-inch thick concrete pad.

E.1.1 Estimate of Maximum Waste in Treatment of Storage

Potentially HE contaminated wastes are not stored at this site, but are held in short-term storage (less than 90 days) at the generation point and moved to the site just before a scheduled incineration. The maximum waste in treatment at one time is 810 pounds.

E.1.2 Description of Waste Handled

The industrial incinerator will be used to burn trash from TA-16 which is potentially HE contaminated. This trash consists of a mixture of highly combustible waste such as paper, cardboard cartons, wood boxes and combustible floor sweepings from industrial activities. The mixture may contain up to ten percent by weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags, and plastic or rubber scraps. The incinerator is also equipped to burn potentially HE contaminated hydraulic oil, tramp oil, and ignitable solvents from machining operations at TA-16.

E.1.3 Closure Procedure and Decontamination

E.1.3.1 Partial Closure

No partial closure of this unit is expected to occur. Any requirement for decontamination to perform maintenance, without total removal of the unit, is not considered closure.

E.1.3.2 Final Closure

Personnel involved in sampling and decontamination will wear rubber gloves, safety glasses, and coveralls. Personnel involved in dust generating activities, such as digging and filling drums, will wear dust masks to prevent inhalation of contaminated dust. The Laboratory's Industrial Hygiene and Safety Group, ~~HSE-5~~ ESH-5, will review the site survey analytical data and recommend additional protective clothing if necessary.

All remaining wastes will be incinerated before shutting down the industrial incinerator. If for some reason it is not possible to incinerate all the waste on the site, the waste will be sent ~~offsite~~ off site to a permitted facility. When all the waste inventory has been properly treated or disposed of, the site will be decontaminated as follows: First, the entire incineration system, including the two combustion chambers and the settling chamber will be scraped and brushed clean to remove any solid residue. All residue will be placed in 55-gallon drums and transferred to TA-54, Area L for sampling, analysis and appropriate disposal. The incinerator will be wrapped in plastic and sealed with tape, then transported to the HE decontamination slab at TA-16-400. Decontamination of the incinerator at TA-16-400 will follow the procedures below.

Small equipment used to pick up soil, ash, or other residues will be scraped and brushed clean, and the accumulated dust will be placed in drums for sampling, analysis and transport to Area L. The equipment will be wrapped in sheet plastic and sealed with tape, then transported to the HE decontamination slab at TA-16-400.

The decontamination pad at TA-16-400 is used to wash down equipment used in handling HE. The cleaning water is collected in a sump and then hauled to the TA-16 burn pad area with a vacuum truck. At the burn pads, the water is filtered in two sand filters, the filtered residual is burned, and the filtered water discharged under a NPDES permit. Residues from the filter have been tested and are regulated under RCRA. The equipment will be decontaminated by disassembling and scrubbing with detergent and water wash. Testing for decontamination of equipment will be conducted for the regulated constituents potentially present. Washing with detergent is adequate for safe handling as the primary hazard is due to the HE.

The concrete pad underlying the incinerator will be scraped, swept, or brushed clean, and the resulting residue placed in 55-gallon drums. The drums will be transferred to TA-54, Area L for appropriate sampling, analysis and off-site disposal. A small trench will be dug around the concrete pad, with a sump at the lowest point. The trench and sump will be lined with sheet plastic. The pad will then be scrubbed with a warm Liquinox (@) or Alconox (@) solution in water. The run-off from the pad, collected in the sump, will be bailed into drums, sampled and transported to TA-54, Area L where the solution will be stored, sampled, analyzed and shipped ~~offsite~~ off site for disposal. Section E.1.6. describes sampling procedures for this water. The washing will be repeated until decontamination is demonstrated. The clean pads will be treated as a nonregulated waste and left in place, or if removed, the resulting rubble used as landfill.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence interval, to their concentration in the unused washwater or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.1.4 Closure Schedule

The year of closure is 2100. Closure will observe the schedule provided in Table E.1.1. The contract for equipment disassembly is expected to exceed $100,000. Because laboratory policy requires that work be put out to bid, 90 days are required to solicit and process the bids. The selection of a contractor will be made before closure begins. Closure is estimated to take 180 days.

E.1.5 Closure Certification

An independent registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the ~~Director of NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by the ~~HSE-8 Regulatory Compliance Section~~ ESH-19 Hazardous and Solid Waste Group.

E.1.6 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more appropriate. All analytical procedures actually used will be annotated in the final closure report. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-0 1 8 and/or SW-846.

~~E.3.6.1~~ E.1.6.1 Soil and Solid Residues Sampling

Under normal circumstances the following soil sampling information will be inapplicable. Should however, spills occur outside the modular unit, sampling of the area will be required to verify that no hazardous constituents remain upon closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core

sampler or Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be hazardous waste.

~~E.3.6.1.1~~ E.1.6.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.1.6.1.2 Sampling procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the ground/material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.1.6.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure E.1.2., the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system.

As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as a hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

E.1.6.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox (@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.1.6.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.

- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.1.6.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.1.3.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.1.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced

as evidence in litigation. This is a two-page record with the original accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.1.5.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of samples;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc.);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc.);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc.);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be completed by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.1.7 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed, and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination. ~~See the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.~~

E.1.8 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.1.5.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification;
2. Sampling location;
3. The datum reported;
4. Detection limit for each datum;
5. A measure of analytical precision (e.g. uncertainty, range, variance);
6. Identification of analytical procedure; and
7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books;
2. Laboratory sample analysis reports;
3. The QA/QC documentation; and
4. Chain of custody records.

F. Disposal location of all regulated and non-regulated residues.

G. A certification of accuracy of the report.

TABLE E.1.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify ~~EID~~ NMED of the closure	-90 days
Let contract request for proposals	-90 days
Receive proposals	-30 days
Select and award contract	-10 days
Begin closure activities	Day 0
Treatment of final wastes	Day 30
Residue removal from incinerator	Day 40
Internal/external wash down	Day 50
Incinerator disassembly	Day 75
Incinerator component decontamination	Day 125
Residue removal from concrete pad	Day 135
Concrete pad wash down	Day 140
Final clean up	Day 160
Decontamination verification	Day 180
Submittal of final report ~~EID~~ to NMED	Day 210

NOTE: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

TABLE E.1.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Barium	Halogenated volatile organics	Ignitability
Cadmium	Nonhalogenated volatile organics	Reactivity
Selenium	Acid-extractable semivolatile organics	pH
Lead	Base-neutral extractable semivolatile organics	
Mercury	Phenols	
Beryllium		

NOTE: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures.~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.1.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Solid residues from combustion and settling chambers[a]	X	X	X
Solid residues from the concrete pad[a]	X	X	X
Small equipment decontamination residues[a]	X	X	
Decontamination washwater before use		X	
Decontamination washwater after use		X	

NOTE: Sampling parameters as given in Table E.1.2.

[a]These residues may be composited before sampling.

FIGURE E.1.1 - BURNING AREA MAP

FIGURE E-1.2 - COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E-1.3
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E-1.4
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E-1.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____) _____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____) _____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

CLOSURE PLAN

PERMIT ATTACHMENT E.2
NM 0890010515-1

UNIT CLOSED

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.3	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.3	Global	Global	No	Change "washwater" to "wash water" and "washwaters" to "wash waters".	1	A.2
E.3	1 of 17	E.3.2.	No	Change "lab-packing" to "lab packing" and "labpacked" to "lab-packed".		
E.3	1 of 17	E.3.3.2.	No	Change "Industrial Hygiene Group, HSE-5" to "Industrial Hygiene and Safety Group, ESH-5".	1	A.1
E.3	2 of 17	E.3.3.2.	No	Change "a" to "an" after "unit and handled as".	1	A.2
E.3	2 of 17	E.3.3.2.	No	Insert "be" before "picked up with mops".	1	A.2
E.3	2 of 17	E.3.3.2.	No	Change "breeching" to "breaching".	1	A.2
E.3	2 of 17	E.3.3.2.	No	Change "waster" to "water".	1	A.2
E.3	3 of 17	E.3.4.	No	Insert "be" before "contaminated if the used".	1	A.2
E.3	3 of 17	E.3.4.	No	Change "Director" to "Secretary".	1	A.1
E.3	3 of 17	E.3.6.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.3	3 of 17	E.3.6.	No	Change "HSE-8 Regulatory Compliance Section" to "ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.3	4 of 17	E.3.7.1.2.	No	Move "trowel or scoop" from title and place as subheading.	1	A.2
E.3	6 of 17	E.3.7.2.1.	No	Change "an" to "and".	1	A.2
E.3	8 of 17	E.3.9.	No	Change "Director" to "Secretary".	1	A.1
E.3	10 of 17	Table E.3.1.	No	Change "EID" to "NMED" (two times).	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.3	10 of 17	Table E.3.1.	No	Change "disassemblyas" to "disassembly, as".	1	A.2
E.3	11 of 17	Table E.3.2.	Yes[1]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.3	11 of 17	Table E.3.2.	Yes[1]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a
E.3	14 of 17	Figure E.3.2.	No	Update Figure E.3.2 to include new location of Modular units plus new Modular units.	1	A.1

[1] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.3
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.3
NM 0890010515-1

E.3 MODULAR STORAGE UNITS

Some containerized wastes are stored in prefabricated modular storage buildings at various locations in TA-50 and TA-54, Area L. See Figures E.3.1 and E.3.2. These storage units are self-contained and are equipped with chemical resistant walls to provide separation of incompatible wastes, a corrosion resistant fiberglass floor grating, and a polypropylene building sump liner.

E.3.1 Estimate of Maximum Waste in Storage

Each storage unit can store a maximum of thirty 55 gallons drums or a total of 1650 gallons of liquid wastes.

E.3.2 Description of Waste Handled

Three waste streams compose the bulk of the waste stored in the modular units at TA-50, although the system is flexible enough to allow storage of other wastes that may be generated through new Laboratory projects. These streams are an acid/base waste that contains copper, chromate plating waste, and waste cyanide plating solutions. These structures may also be used to store any regulated waste while awaiting ~~lab packing~~ lab packing.

The modular units at TA-54, Area L will be used primarily for the storage of ~~labpacked~~ lab-packed waste. Since six separate cells are available for storage, there may be up to six different categories of waste stored there while waiting treatment or disposal.

E.3.3 Closure Procedures and Decontamination

E.3.3.1 Partial Closure

Partial closure would consist of closure of one unit or more, while leaving other units in service. In such an event, the following procedures would apply to the unit(s) to be closed.

E.3.3.2 Unit Closure

Personnel involved in disassembly and handling of equipment will wear protective equipment, including: acid/solvent-resistant coveralls, head protection, neoprene coated gloves and boots. Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators will be used if specified by the Laboratory's Industrial Hygiene and Safety Group, ~~HSE-5~~ ESH-5, following a field inspection.

The inside of the unit will be scrubbed and rinsed with a warm solution of Liquinox(@) or Alconox(@) in water. The cleaning solutions will accumulate in the internal sumps and will be pumped into drums with a small manually operated drum pump. Samples of this solution will be taken from the drum to

verify decontamination. Washdown will be repeated until decontamination is verified. The drummed liquid will be transported to TA-54, Area L for sampling, analysis and off site treatment and/or disposal.

The unit will be disassembled by removing all removable walls, grates etc. and then visually inspected. Any residual matter found will be scraped or brushed off the area where the residue occurred, then washed and rinsed. Dry residues will be placed in drums for transport to TA-54, Area L, for storage, sampling and analysis prior to off site disposal at a permitted facility. Liquids from washing and rinsing will be placed in approved Department of Transportation (DOT) containers and transported to TA-54, Area L for sampling, analysis and off site disposal. Cleaned pieces will be removed from the unit and handled as ~~a~~ an unregulated waste or reassembled into the unit after decontamination is verified.

Spills occurring during disassembly will be contained in the unit and will ~~be~~ picked up with mops. No decontamination of container handling equipment is anticipated during closure because the wastes are inside containers and no contact is expected between wastes and handling equipment. If ~~breeching~~ breaching of any container of hazardous waste or hazardous material occurs, all contaminated equipment will be decontaminated by washing with appropriate cleaning solutions. Spills occurring outside the unit will be picked up with absorbent material such as vermiculite or commercial absorbent. The absorbed material will be swept up, placed in a DOT approved container and disposed of as hazardous waste. The area will be mopped or flushed with Liquinox(@) or Alconox(@) solution, the wash water picked up with absorbent material as above and placed in a container for disposal as a hazardous waste. Each container may be sampled and analyzed for hazardous constituents as listed in HWMR-5, Part II, Appendix VIII. Containers not containing hazardous constituents may be handled as unregulated waste.

Units emplaced over impervious surfaces, concrete or asphalt, need not have the surface sampled for spill residues from past handling practices. Units emplaced over absorbent surfaces will have a minimum of three soil samples to a depth of six inches taken in the area of each access door. The samples will be separately analyzed for the parameters in Table E.3.2. If contamination is discovered, a three foot grid centered on the locus of contaminated points will be sited and samples taken and analyzed to determine the extent of contamination. Analyses for this investigation can be made for the constituent(s) found in the initial survey. All contaminated soil to a depth of six inches will be removed and disposed of at a permitted facility.

Protective clothing, coveralls, face shields, and boots worn during the wash down will be rinsed in clean water while the items are within the unit. The rinse water will be handled with the dirty water from the external wash down. Following internal and external decontamination, the unit will be considered free from regulated wastes if the ~~washwaters~~ wash waters do not show any contamination from the constituents listed in Table E.3.2. Protective clothing will be worn by personnel disassembling the unit. The protective clothing and tools used during disassembly will be washed with detergent and water. The wash ~~waster~~ water will be collected and analyzed. If the wash water is nonhazardous, the water will be discharged to the industrial waste water sewer. If the wash water contains hazardous constituents, it will be transported off site to a permitted disposal facility. Mops and rags used for cleanup will be placed in drums for transport to Area L, for ultimate off site disposal at a permitted facility. Nondisposable tools, equipment, etc. which come in contact with the dirty wash water will be decontaminated.

E.3.4 Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox(@) or Alconox(@) solution in water and analyzed for the constituents listed in table E.3.2.

One additional clean solution sample will be taken for each additional washdown event. These analytical results provide background data for decontamination verification.

Dirty washdown solutions will also be analyzed for the constituents listed in Table E.3.2. Analytical procedures will conform to methods found in SW-846. Equipment will be considered to be contaminated if the used wash solutions show a significant increase in the listed constituents over the clean wash solution.

The constituents listed in Table E.3.2. include regulated constituents normally stored in the units. A scan for volatile and semivolatile organics is performed to ensure that solvents commonly used within the Laboratory have not contaminated the unit.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.3.5 Closure Schedule

The year of closure for the modular storage units is 2100. Closure will observe the schedule given in Table E.3.1.

The contract for closure activities is expected to exceed $100,000. Because Laboratory policy requires that the work be put out for bid, 90 days are required to solicit and process the bids. The selection of a contractor will be made before closure begins. Closure is estimated to take 180 days.

E.3.6 Closure Certification

An independent registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the ~~Director of NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by the ~~HSE-8 Regulatory Compliance Section~~ ESH-19 Hazardous and Solid Waste Group.

E.3.7 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more appropriate. All analytical procedures actually used will be annotated in the final closure report. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-0 1 8 and/or SW-846.

E.3.7.1 Soil and Solid Residues Sampling

Under normal circumstances the following soil sampling information will be inapplicable. Should however, spills occur outside the modular unit, sampling of the area will be required to verify that no hazardous constituents remain upon closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be hazardous waste.

E.3.7.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.3.7.1.2 Sampling procedures ~~trowel or scoop~~

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.

- Combine the samples in a glass container.

- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.
- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.
- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.
- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.3.7.2 Liquid Sampling

A ~~Coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~Coliwasa~~ COLIWASA is shown in Figure E.3.3, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~Coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

E.3.7.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~Coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using the ramrod and fiber reinforced paper towels, the ~~Coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean ~~an~~ and protected area.

E.3.7.2.2 Sampling procedures

- Assemble the ~~Coliwasa~~ COLIWASA sampler.
- Make sure that the ~~Coliwasa~~ COLIWASA sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the ~~Coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the Liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.3.7.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.3.4.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.3.5.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two-page record with the original accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.3.6.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be completely by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.3.8 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.3.9 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.3.6.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,

2. Sampling location,

3. The datum reported,

4. Detection limit for each datum,

5. A measure of analytical precision (e.g. uncertainty, range, variance),

6. Identification of analytical procedure, and

7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination determination.

E. The location of the file of supporting documentation:

1. Field log books,

2. Laboratory sample analysis reports,

3. The QA/QC documentation, and

4. Chain of custody records.

F. Disposal location of all regulated and nonregulated residues.

G. A certification of accuracy of the report.

TABLE E.3.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify ~~EID~~ NMED of closure	-90 Days
Advertise for proposals	-90 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Begin closure activities	Day 0
Internal wash down complete	Day 30
External wash down complete	Day 50
Unit disassembly, as required	Day 80
Floor wash down	Day 100
Final clean up	Day 120
Decontamination verification	Day 150
Submit final report to ~~EID~~ NMED	Day 180

NOTES: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

This schedule is applicable to either partial or final closure.

TABLE E.3.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	Ignitability
Cadmium	Acid-extractable semivolatile organics	Reactivity
Selenium	Base-neutral extractable semivolatile organics	pH
Lead	Phenols	
Mercury	Organochlorine pesticides	
Nickel	Chlorinated herbicides	
Beryllium		
Chromium		
Silver		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.3.3.
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Soil sampling[a]	X	X	X
Solid wastes & residues	X	X	X
~~Washwater~~ Wash water before use	X	X	X
~~Washwater~~ Wash water after use	X	X	X
Protective clothing ~~washwater~~ wash water		X	

NOTES: Analytical parameters are given in Table E.3.2.

[a]For units placed over permeable surfaces.

FIGURE E.3.1
LOCATION OF TA-50 CHEMICAL WASTE INCINERATOR MAP

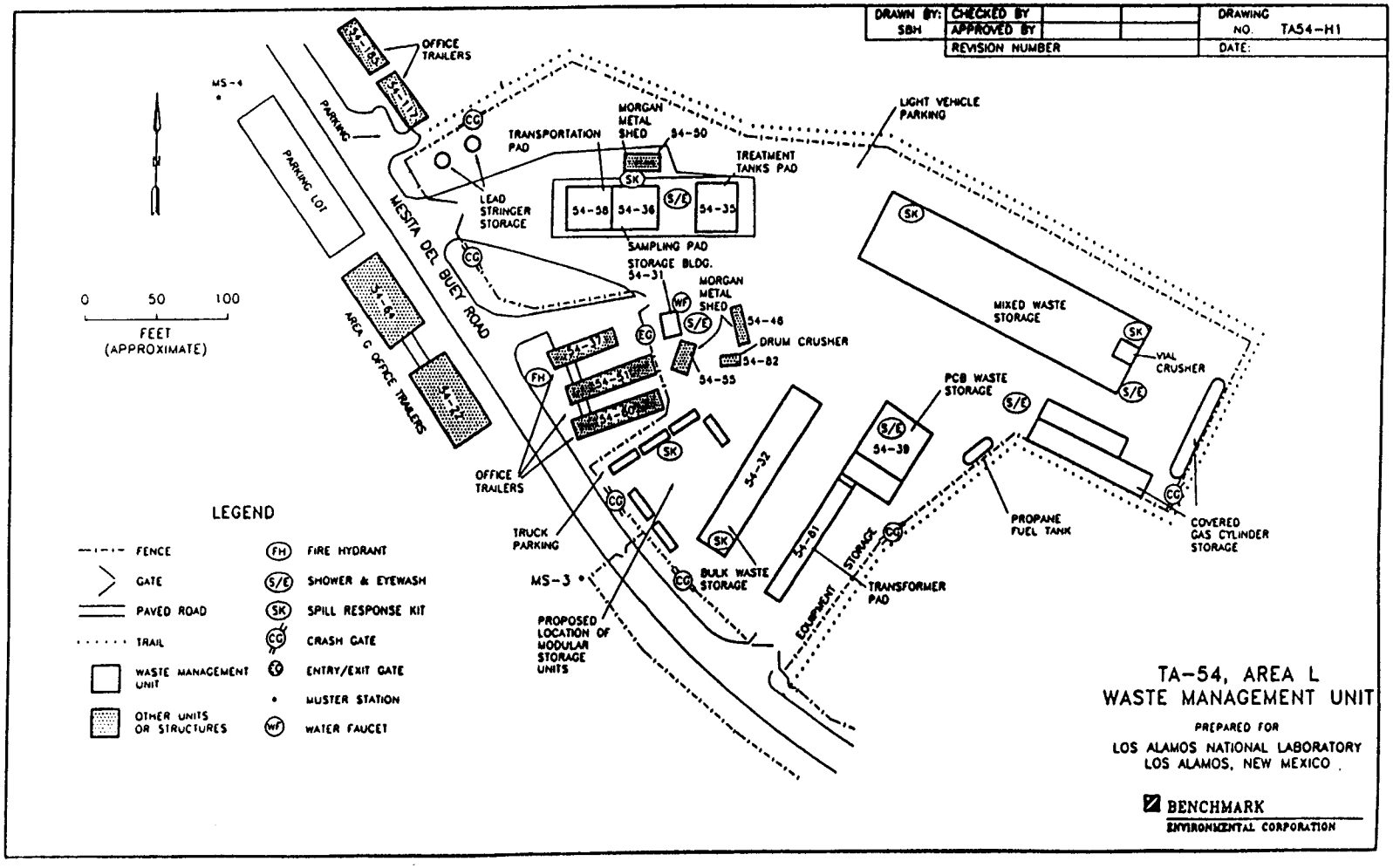

FIGURE E.3.2
TA-54 AREA L MAP

FIGURE E.3.3
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.3.4
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.3.5
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.3.6
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____
_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.4	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.4	Global	Global	No	Change "washwater" to "wash water" and "washwaters" to wash waters".	1	A-2
E.4	2 of 16	E.4.3.2.	No	Change "EID" to "NMED".	1	A.1
E.4	2 of 16	E.4.3.2.	No	Change "neoprenecoated gloves, and boots," to "neoprene-coated gloves, and boots".	1	A.2
E.4	2 of 16	E.4.3.2.	No	Change "Industrial Hygiene Group, HSE-5" to "Industrial Hygiene and Safety Group, ESH-5".	1	A.1
E.4	2 of 16	E.4.3.2.	No	Change "waster" to "water".	1	A.2
E.4	3 of 16	E.4.4.	No	Change "Director" to "Secretary".	1	A.1
E.4	3 of 16	E.4.6.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.4	3 of 16	E.4.6.	No	Change "HSE-8 Regulatory Compliance Section" to "ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.4	4 of 16	E.4.7.	No	Insert "," after "if refrigeration is required".	1	A.2
E.4	4 of 16	E.4.7.1.2.	No	Move "trowel or scoop" from title and place as subheading.	1	A.2
E.4	5 of 16	E.4.7.1.2.	No	Change "further" to "farther".	1	A.2
E.4	5 of 16	E.4.7.2.	No	Change "E.4.8.2" to "E.4.7.2".	1	A.2
E.4	5 of 16	E.4.7.2.1.	No	Change "E.4.8.2.1" to "E.4.7.2.1".	1	A.2
E.4	6 of 16	E.4.7.2.2.	No	Change "E.4.8.2.2" to "E.4.7.2.2".	1	A.2
E.4	7 of 16	E.4.7.3.	No	Change "E.4.8.3" to "E.4.7.3".	1	A.2
E.4	7 of 16	E.4.7.3.	No	Change "8 1/12" to "8 1/2".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.4	8 of 16	E.4.8.	No	Change "E.4.9" to "E.4.8".	1	A.2
E.4	8 of 16	E.4.9.	No	Change "E.4.10" to "E.4.9".	1	A.2
E.4	8 of 16	E.4.9.	No	Change "Director" to "Secretary".	1	A.1
E.4	8 of 16	E.4.9.A.	No	Change "E.3.6" to "E.4.6".	1	A.2
E.4	10 of 16	Table E.4.1	No	Change "EID" to "NMED" (two times).	1	A.1
E.4	11 of 16	Table E.4.2	No	Change "Berylium" to "Beryllium".	1	A.2
E.4	11 of 16	Table E.4.2	Yes[1]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.4	11 of 16	Table E.4.2	Yes[1]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a

[1] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.4.
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.4.
NM 0890010515-1

E.4 CHEMICAL WASTE INCINERATOR

The waste incinerator is located in Building 37 at Technical Area 50 (Figure E.5.1.). The controlled-air incinerator is rated at a nominal 45 kilograms per hour waste feed throughput. The incinerator is currently permitted to burn PCB-contaminated liquid materials and radioactive wastes. Modifications to the incinerator include additions of liquid waste tanks and solid waste feed preparation lines, a gravity ash removal system, a high-efficiency off-gas cleanup system, and backup utility systems. Standard combustion equipment has been modified to permit effective incineration of waste in solid, liquid, slurry, or gaseous form. Particular attention has been given to engineering for proper waste containment with an emphasis on radioactivity.

E.4.1 Estimate of Maximum Waste in Storage and Treatment

The maximum inventory of hazardous wastes stored and treated at any one time in the TA-50 waste incinerator is estimated at 8 cubic meters (2200 gallons).

E.4.2 Description of Waste Handled

The incinerator and the flue gas treatment systems are capable of combusting a variety of hazardous wastes, including chemical waste, mixed waste, low-level radioactive wastes and transuranic wastes. The Laboratory wastes are a mixture of liquid and solid hazardous wastes composed of various organic solvents and liquids, as well as chemically contaminated paper, wood, and plastics. The liquids can contain either characteristic or listed wastes containing HWMR-5, Part II, Appendix VIII constituents. The incinerator burns all HWMR-5, Part II, Appendix VIII constituents with an incinerability ranking equal to or better than carbon tetrachloride.

E.4.3 Closure Procedure

E.4.3.1. Partial Closure

No partial closure of this unit is expected to occur. Any requirement for decontamination to perform maintenance, without total removal of the unit, is not considered closure. Components removed and replaced will be decontaminated or disposed of as regulated waste.

E.4.3.2. Final Closure

All remaining wastes will be incinerated before shutting down the incinerator. If for some reason it is not possible to incinerate all the waste on the site, the waste will be sent to a permitted off-site treatment or disposal facility.

Upon the decision to close the facility, the equipment and building will be surveyed to determine the nature and levels of both radioactive and hazardous chemical contamination. Using the Laboratory guidelines and procedures, a decommissioning document will be prepared describing in detail the methods and procedures for decontamination, demolition, packaging, and disposal. All materials generated from decontamination and demolition will be treated as radioactive or mixed waste and disposed of in accordance with appropriate regulations. A copy of the final decommissioning document will be provided to the ~~EID~~ NMED upon publishing.

When all the waste inventory has been properly disposed of, the unit will be decontaminated as follows: First, the entire incineration system (incinerator, all relevant lines and pumps, and the air pollution control system) will be disassembled and inspected. Those components amenable to decontamination will be cleaned by washing with Liquinox(@) or Alconox(@) solution in water, followed by a thorough steam cleaning. The spent cleaning solution will be collected and analyzed for hazardous constituents. If no constituents are detected, these components will be deemed decontaminated and released for reuse or disposal. If constituents are detected, further cleaning will be repeated until decontamination is verified. Those components not amenable to decontamination, the two incinerator chambers, including all attached refractory and residual solid residue, will be sealed and sent to a designated radioactive mixed waste disposal facility. The manner of disposal will depend on any residual radionuclide contamination as well as any residual hazardous waste contamination. All radioactive components will be decontaminated to the extent practicable and disposed of according to appropriate Department of Energy orders.

Personnel involved in decontaminating the incinerator will wear protective equipment, including, acid/solvent-resistant coveralls, head protection, neoprene-coated gloves, and ~~boots,~~ boots. Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators will be used if specified by the Laboratory's Industrial Hygiene and Safety Group, ~~HSE-5~~ ESH-5, following a field inspection.

The protective clothing and tools used during the wash down will be cleaned with detergent and water. The wash ~~waster~~ water will be collected and analyzed. If the wash water is non-hazardous, the water will be discharged to the industrial waste water sewer. If the wash water contains hazardous constituents, it will be treated on-site or transported off-site to a permitted facility. Mops and rags used for clean-up will be placed in drums for transport to Area L, with ultimate off-site disposal at a permitted facility.

E.4.4 Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox(@) or Alconox(@) solution in water and analyzed for the constituents listed in Table E.4.2.

One additional clean wash solution sample will be taken for each additional washdown event. These analytical results provide background data for decontamination verification.

Dirty wash-down solutions will be analyzed for the constituents listed in Table E.4.2. Analytical procedures will conform to methods found in SW 846. Equipment will be considered to be contaminated if the dirty wash solutions show a significant increase in the listed constituents over the clean wash solution.

The constituents listed in Table E.4.2. include regulated constituents normally treated in the unit. A scan for volatile and semivolatile organics is performed to ensure that solvents commonly used within the Laboratory have not contaminated the unit.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused ~~washwater~~ wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.4.5 Closure Schedule

Characterization of the final delivery of hazardous waste may require up to 30 days. An estimated 60 days will be required to schedule and process the final wastes on hand. Once the chemical decontamination is completed the incinerator will be surveyed for radioactive contamination in preparation for decommissioning.

The survey of the incinerator facilities to determine the nature and level of radioactive contamination and to prepare the decommissioning document is estimated to take one year. Decommissioning and final disposal are estimated to take up to one year.

The year of closure for the TA-50-37 incinerator is 2100. Closure will observe the schedule given in Table E.4.1.

E.4.6 Closure Certification

An independent registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the ~~Director of NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by the ~~HSE-8 Regulatory Compliance Section~~ ESH-19 Hazardous and Solid Waste Group.

E.4.7 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more

appropriate. All analytical procedures actually used will be annotated in the final closure report. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW 846.

E.4.7.1 Solid Residues Sampling

Under normal circumstances the following soil sampling information is inapplicable. Should, however, spills occur outside the building, sampling of the area will be required to verify that no hazardous constituents remain upon closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer sampler. Drums unable to be sampled will be assumed to be hazardous waste.

E.4.7.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped.

E.4.7.1.2 Sampling procedures ~~trowel or scoop~~

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.
- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.
- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.
- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

~~E.4.8.2~~ E.4.7.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure E.4.2, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross-contamination.

~~E.4.8.2.1~~ E.4.7.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber-reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross-contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samples should be stored in polyethylene plastic tubes or bags in a clean and protected area.

~~E.4.8.2.2~~ E.4.7.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.
- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the Liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

~~E.4.8.3~~ E.4.7.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.4.3.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The field information in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.4.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two-page record with the original accompanying shipment and the copy retained by the Laboratory. An example of this form is shown in Figure E.4.5.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8~~-1/12~~½ by 11-inch format.

Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc);

l. Collector's sample identification number(s);

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be completely by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

~~E.4.9~~ E.4.8 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

~~E.4.10~~ E.4.9 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph ~~E.3.6~~ E.4.6.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,

2. Sampling location,

3. The datum reported,

4. Detection limit for each datum,

5. A measure of analytical precision (e.g. uncertainty, range, variance),

6. Identification of analytical procedure, and

7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination determination.

E. The location of the file of supporting documentation:

1. Field log books,

2. Laboratory sample analysis reports,

3. The QA/QC documentation, and

4. Chain of custody records.

F. Disposal location of all regulated and nonregulated residues.

G. A certification of accuracy of the report.

TABLE E.4.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Preclosure	
Make decision to close	-380 Days
Characterize waste on hand	-360
Notify the ~~EID~~ NMED	-360
Complete final incineration	-330
Survey the building for radioactivity	-320
Prepare preliminary decommissioning document	-150
Prepare final decommissioning document	-100
Let contract request for proposals	-90
Receive proposals	-30
Select contractor and award contract	-10
Closure	
Begin closure activities	Day 0
Unit disassembly as required	Day 180
Internal washdown complete	Day 210
External washdown complete	Day 220
Floor washdown	Day 230
Final cleanup	Day 260
Decontamination verification	Day 310
Submit final report to ~~EID~~ NMED	Day 360

NOTE: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

TABLE E.4.2.
ANALYTICAL PARAMETERS AND METHODS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	Ignitability
Cadmium	Acid-extractable semivolatile organics	Reactivity
Selenium	Base-neutral extractable semivolatile organics	pH
Lead	Phenols	
Mercury	Organochloride pesticides	
~~Berylium~~ Beryllium	Chlorinated herbicides	
Chromium		
Silver		
Nickel		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW 846, and may be superseded by more current methods from SW 846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.4.3.
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
~~Washwater~~ Wash water before use	X	X	X
~~Washwater~~ Wash water after use	X	X	X
Solid wastes & residues	X	X	X
Protective clothing ~~washwater~~ wash water		X	

NOTE: Analytical parameters are given in Table E.4.2.

FIGURE E.4.1.

**LOCATION OF TA-50
CHEMICAL WASTE INCINERATOR AND CONTAINER STORAGE UNITS**

FIGURE E.4.2.

COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.4.3
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.3.4
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.3.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.5	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.5	Global	Global	No	Change "washwater" to "wash water" and "washwaters" to "wash waters".	1	A.2
E.5	1 of 15	E.5.1.	No	Change "E.5.2" to "E.5.1".	1	A.2
E.5	1 of 15	E.5.2.	No	Change "E.5.3" to "E.5.2".	1	A.2
E.5	1 of 15	E.5.3.	No	Change "E.5.4" to "E.5.3".	1	A.2
E.5	1 of 15	E.5.3.1.	No	Change "E.5.4.1" to "E.5.3.1".	1	A.2
E.5	1 of 15	E.5.3.2.	No	Change "E.5.4.2" to "E.5.3.2".	1	A.2
E.5	1 of 15	E.5.3.2.	No	Change "decontaiminating" to "decontaminating".	1	A.2
E.5	1 of 15	E.5.3.2.	No	Change "neoprene coated gloves, and boots," to "neoprene-coated gloves, and boots".	1	A.2
E.5	1 of 15	E.5.3.2.	No	Change "Industrial Hygiene Group, HSE-5" to "Industrial Hygiene and Safety Group, ESH-5".	1	A.1
E.5	1 of 15	E.5.3.2.	No	Change "sotred" to "stored".	1	A.2
E.5	2 of 15	E.5.3.2.	No	Change "transpoted" to "transported".	1	A.2
E.5	2 of 15	E.5.4.	No	Change "E.5.5" to "E.5.4".	1	A.2
E.5	2 of 15	E.5.4.	No	Change "Director" to "Secretary".	1	A.1
E.5	2 of 15	E.5.5.	No	Change "E.5.6" to "E.5.5".	1	A.2
E.5	2 of 15	E.5.6.	No	Change "E.5.7" to "E.5.6".	1	A.2
E.5	2 of 15	E.5.6.	No	Change "Permitee" to "Permittee".	1	A.2
E.5	2 of 15	E.5.6.	No	Change "orignial" to "original".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.5	3 of 15	E.5.6.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.5	3 of 15	E.5.6.	No	Change "the HSE-8 Regulatory Compliance Section" to "the ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.5	3 of 15	E.5.7.	No	Change "E.5.8" to "E.5.7".	1	A.2
E.5	3 of 15	E.5.7.	No	Change "shows" to "show".	1	A.2
E.5	3 of 15	E.5.7.1.	No	Change "E.5.8.1" to "E.5.7.1".	1	A.2
E.5	3 of 15	E.5.7.1.	No	Change "E.3.2" to "E.5.2".	1	A.2
E.5	3 of 15	E.5.7.1.	No	Change "wiht" to "with".	1	A.2
E.5	4 of 15	E.5.7.1.1.	No	Change "E.5.8.1.1" to "E.5.7.1.1".	1	A.2
E.5	4 of 15	E.5.7.1.1.	No	Change "ot" to "or".	1	A.2
E.5	4 of 15	E.5.7.1.1.	No	Change "sir-dried" to "air-dried".	1	A.2
E.5	4 of 15	E.5.7.1.2.	No	Change "E.5.8.1.2" to "E.5.7.1.2".	1	A.2
E.5	4 of 15	E.5.7.1.2.	No	Change "further" to "farther".	1	A.2
E.5	4 of 15	E.5.7.1.2.	No[1]	Insert "at least two revolutions to shear off the sample at the bottom" to the seventh bullet for the Veihmeyer sampler.	1	A.2
E.5	4 of 15	E.5.7.1.2.	No[1]	Insert "Lower the sampler" before "handle (hammer)" and make this item a separate bullet. Also change "protusions" to "protrusions".	1	A.2
E.5	5 of 15	E.5.7.2.	No	Change "E.5.8.2" to "E.5.7.2".	1	A.2
E.5	5 of 15	E.5.7.2.	No	Change "useed" to "used".	1	A.2
E.5	5 of 15	E.5.7.2.1.	No	Change "E.8.8.2.1" to "E.5.7.2.1".	1	A.2
E.5	5 of 15	E.5.7.2.1.	No	Change "sir-dried" to "air-dried".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.5	5 of 15	E.5.7.2.1.	No	Change "an" to "and".	1	A.2
E.5	5 of 15	E.5.7.2.2.	No	Change "E.5.8.2.2" to "E.5.7.2.2".	1	A.2
E.5	6 of 15	E.5.7.2.2.	No	Change "Liquid" to "liquid".	1	A.2
E.5	6 of 15	E.5.7.2.2.	No	Change "jplostic" to "plastic".	1	A.2
E.5	6 of 15	E.5.7.3.	No	Change "E.5.8.3" to "E.5.7.3".	1	A.2
E.5	6 of 15	E.5.7.3.	No	Change "imprtant" to "important".	1	A.2
E.5	6 of 15	E.5.7.3.	No	Change "shipmemnt" to "the shipment".	1	A.2
E.5	6 of 15	E.5.7.3.	No	Change "8-I/1" to "8-1/2".	1	A.2
E.5	7 of 15	E.5.7.3.i.	No	Change "smapling" to "sampling".	1	A.2
E.5	7 of 15	E.5.7.3.	No	Change "completely" to "completed".	1	A.2
E.5	7 of 15	E.5.7.3.	No	Change "completyed" to "completed".	1	A.2
E.5	7 of 15	E.5.8.	No	Change "E.5.9" to "E.5.8".	1	A.2
E.5	7 of 15	E.5.8.	No	Change "Permitee" to "Permittee".	1	A.2
E.5	7 of 15	E.5.8.	No	Change "follwoed" to "followed".	1	A.2
E.5	8 of 15	E.5.9.	No	Change "E.5.10" to "E.5.9".	1	A.2
E.5	8 of 15	E.5.9.	No	Change "Permitee shal" to "Permittee shall".	1	A.2
E.5	8 of 15	E.5.9.	No	Change "Director" to "Secretary".	1	A.1
E.5	8 of 15	E.5.9.A.	No	Change "E.5.7" to "E.5.6".	1	A.2
E.5	9 of 15	Table E.5.1	No	Change "EID" to "NMED" (two times).	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.5	10 of 15	Table E.5.2	No	Change "Berylium" to "Beryllium".	1	A.2
E.5	10 of 15	Table E.5.2	No	Change "Chloronated" to "Chlorinated".	1	A.2
E.5	10 of 15	Table E.5.2	Yes[2]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.5	10 of 15	Table E.5.2	Yes[2]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a
E.5	14 of 15	Figure E.5.4	No	Change "E-5.4" to "E.5.4" for consistency.	1	A.2
E.5	15 of 15	Figure E.5.5	No	Change "E-5.5" to "E.5.5" for consistency.	1	A.2

[1] Two bulleted items under Veihmeyer sampler were inadvertently combined, with some information being deleted, during previous work with the section. This modification corrects the error by adding the missing information and separating the two items.

[2] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.5
NM 0980010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.5
NM 0980010515-1

E.5 CHEMICAL WASTE INCINERATOR CONTAINER STORAGE AREA

Contained wastes to be incinerated are stored in Room 117 of Building 37, TA-50 (Figure E.5.1). The storage area has a concrete floor with a grated false floor sixteen inches above the concrete. The concrete is coated with Semstone (@). Liquid and solid contained compatible wastes are stored in the area. The waste containers are predominately 55-gallon drums and 330-gallon polyethylene containers, all meeting Department of Transportation (DOT) specifications. Solid wastes may be stored in boxes.

~~E.5.2~~ E.5.1 Estimate of Maximum Waste in Storage and Treatment

The maximum inventory of hazardous wastes stored at the TA-50 waste incinerator is estimated at 13 cubic meters (solid wastes plus 3630 gallons of liquids).

~~E.5.3~~ E.5.2 Description of Waste Handled

The Laboratory wastes are a mixture of liquid and solid hazardous wastes composed of various organic solvents and liquids as well as chemically contaminated paper, wood, and plastics. The liquids can contain either ignitable or listed wastes containing HWMR-5, Part II, Appendix VIII constituents. The incinerator is fed all HWMR-5, Part II, Appendix VIII constituents with an incinerability ranking equal to or better than carbon tetrachloride.

~~E.5.4~~ E.5.3 Closure Procedure

~~E.5.4.1~~ E.5.3.1 Partial Closure

Partial closure of this unit is not expected to occur.

~~E.5.4.2~~ E.5.3.2 Final Closure

Personnel involved in ~~decontaiminating~~ decontaminating the storage area will wear protective equipment, including, acid/solvent resistant coveralls, head protection, ~~neoprene coated~~ neoprene-coated gloves, and ~~boots,~~ boots. Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators or other protective equipment will be used if specified by the Laboratory's Industrial Hygiene and Safety Group, ~~HSE-5~~ ESH-5, following a field inspection.

All remaining wastes will be incinerated before closing the storage area. If for some reason it is not possible to incinerate all the waste on the site, the waste will be sent to a designated off site treatment or disposal facility.

Following removal of all ~~sotred~~ stored waste, the floor and grate of Room 117 will be washed and rinsed with a warm Liquinox(@) and Alconox(@) solution in water. The wash water will be picked up and put

into approved DOT containers using a drum pump, rags and/or mops, wringing the excess water into an approved DOT container. This water will be sampled to demonstrate decontamination and transferred to TA-54, Area L for sampling, analysis and off site disposal at a permitted facility.

The protective clothing and tools used during the wash down will be cleaned with detergent and water. The wash water will be collected and analyzed. If the wash water is not hazardous, the water will be discharged to the industrial waste water sewer. If the wash water contains hazardous constituents, it will be treated on site or ~~transpoted~~ transported off site to a permitted facility. Mops and rags used for clean up will be placed in approved DOT containers for transport to TA-54, Area L, for sampling, analysis, storage and off site disposal at a permitted facility.

~~E.5.5~~ E.5.4 Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox(@) or Alconox(@) solution in water and analyzed for the constituents listed in Table E.5.2. One additional clean solution sample will be taken for each additional wash down event. These analytical results provide background data for decontamination verification.

Dirty wash down solutions will also be analyzed for the constituents listed in Table E.5.2. Analytical procedures will conform to methods found in SW 846. Equipment will be considered to be contaminated if the used wash solutions show a significant increase in the listed constituents over the clean wash solution.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

~~E.5.6~~ E.5.5 Closure Schedule

Characterization of the final delivery of hazardous waste may require up to 30 days. An estimated 60 days will be required to schedule and process the final wastes received. The year of closure for the TA-50-37 container storage area is 2100. Closure will observe the schedule given in Table E.5.1.

~~E.5.7~~ E.5.6 Closure Certification

An independent registered professional engineer and the ~~Permitee~~ Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall

be dated and signed by each party, stamped by the registered engineer, and the ~~orignial~~ original copy submitted by the DOE to the ~~Director of NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by ~~the HSE-8 Regulatory Compliance Section~~ the ESH-19 Hazardous and Solid Waste Group.

~~E.5.8~~ E.5.7 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience ~~shows~~ show the alternate method to be more appropriate. Disposable samplers may be used.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in Samplers and Sampling Procedures for Hazardous Waste Streams, EPA 600/2-80-018 and/or SW-846.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

~~E.5.8.1~~ E.5.7.1 Soil and Solid Residue Sampling

Under normal circumstances soil sampling will be inapplicable. If, however, a spill should occur outside the building, sufficient sampling and analysis will be required to ensure that hazardous constituents do not remain after closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Units emplaced over impervious surfaces, concrete or asphalt, need not be sampled for spill residues from past handling practices. Units emplaced over absorbent surfaces such as soil will have a minimum of three soil samples to a depth of six inches taken in the area of each access door. The samples will be separately analyzed for the parameters in Table ~~E.3.2~~ E.5.2. If contamination is discovered, a three foot grid centered on the locus of contaminated points will be sited and samples taken and analyzed to determine the extent of contamination. Analyses for this investigation can be made for the constituent(s) found in the initial survey. All contaminated soils shall be removed.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected ~~wiht~~ with a Veihmeyer soil sampler. Solid residues in drums will also be sampled with a core sampler or Veihmeyer sampler. Drums not able to be sampled will be assumed to be hazardous waste.

~~E.5.8.1.1~~ E.5.7.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) ~~or~~ ~~ot~~ Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and ~~sir-~~ air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

~~E.5.8.1.2~~ E.5.7.1.2 Sampling procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like ~~protusions~~ protrusions on the drive head and rotate about 90 degrees.
- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

~~E.5.8.2~~ E.5.7.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water ~~useed~~ used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure E.5.2, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

~~E.8.8.2.1~~ E.5.7.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and ~~sir~~ air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using the ramrod and fiber reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean ~~an~~ and protected area.

~~E.5.8.2.2.~~ E.5.7.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.

- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the ~~Liquid~~ liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in ~~jplastic~~ plastic bags for subsequent disposal.

~~E.5.8.3~~ E.5.7.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample label is shown in Figure E.5.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially ~~imprtant~~ important when the sample is to be introduced as evidence in litigation. This is a two page record with the original accompanying the ~~shipmemnt~~ shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.5.5.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-½~~1/1~~ by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc);

i. Map or photograph of the ~~smapling~~ sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be ~~completely~~ completed by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be ~~completyed~~ completed by the laboratory personnel when the sample is received.

~~E.5.9~~ E.5.8 Quality Assurance/Quality Control

The ~~Permitee~~ Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan shall be prepared and ~~follwoed~~ followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

~~E.5.10~~ E.5.9 Final Closure Report

Upon completion of the closure activities, the ~~Permitee shal~~ Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph ~~E.5.7~~ E.5.6.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,
2. Sampling location,
3. The datum reported,
4. Detection limit for each datum,
5. A measure of analytical precision (e.g. uncertainty, range, variance),
6. Identification of analytical procedure, and
7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books,
2. Laboratory sample analysis reports,
3. The QA/QC documentation, and
4. Chain of custody records.

F. Disposal location of all regulated and unregulated residues.

G. A certification of accuracy of the report.

TABLE E.5.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify ~~EID~~ NMED of the closure	-90 Days
Advertise for proposals	-90 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Begin closure activities	Day 0
Characterize remaining wastes	Day 30
Complete incineration of wastes	Day 60
Removal of wastes	Day 60
Floor wash down	Day 75
Analyze samples	Day 120
Final clean up	Day 130
Decontamination verification	Day 150
Submit final report to ~~EID~~ NMED	Day 180

NOTE: The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously.

TABLE E.5.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	Ignitability
Cadmium	Acid-extractable semivolatile organics	Reactivity
Selenium	Base-neutral extractable semivolatile organics	pH
Lead	Phenols	
Mercury	Organochlorine pesticides	
~~Berylium~~ Beryllium	~~Chloronated~~ Chlorinated herbicides	
Chromium		
Silver		
Nickel		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.5.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Wash water before use	X	X	X
Wash water after use	X	X	X
Protective clothing wash water		X	
Soil samples[a]	X	X	X

NOTE: Analytical parameters are given in Table E.5.2.

[a]As required. See paragraph E.5.8.1.

FIGURE E.5.1
LOCATIONS OF TA-50 CHEMICAL WASTE INCINERATOR AND CONTAINER STORAGE UNITS

FIGURE E.5.2
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.5.3
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE ~~E.5.4~~ E.5.4
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE ~~E-5.5~~ E.5.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____) _____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____) _____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.6	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.6	1 of 17	E.6.1.	No	Insert "/" between "transfer" and "storage building".	1	A.2
E.6	1 of 17	E.6.3.	No	Change "transfer/storages" to "materials from transfer, accumulation, or storage sites".	1	A.2
E.6	1 of 17	E.6.3.	No	Change "treatment either at Area L or at TA-50-1 Batch Treatment Plant" to "treatment at Area L".	1	A.1
E.6	2 of 17	E.6.5.1.	No	Change "HWMR-S" to "HWMR-5".	1	A.2
E.6	2 of 17	E.6.5.3.	No	For clarity, change "Soil sampling will be conducted to determine if hazardous wastes have been tracked outside of contaminated areas, as described in section E.6.9" to "Soil sampling will be conducted as described in Section E.6.9. to determine if hazardous waste have been tracked outside of contaminated areas".	1	A.2
E.6	3 of 17	E.6.5.3.	No	Change "HWMR-S" to "HWMR-5".	1	A.2
E.6	3 of 17	E.6.5.4.	No	Change "E.6.5.5" to "E.6.5.4".	1	A.2
E.6	3 of 17	E.6.5.4.	No	Change "shied" to shield".	1	A.2
E.6	3 of 17	E.6.5.4.	No	Change "Industrial Hygiene group (HSE-5)" to "Industrial Hygiene and Safety Group (ESH-5)".	1	A.1
E.6	3 of 17	E.6.5.5.	No	Change "E.6.5.6" to "E.6.5.5".	1	A.2
E.6	4 of 17	E.6.6.	No	Change "Director" to "Secretary".	1	A.1
E.6	4 of 17	E.6.8.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.6	4 of 17	E.6.8.	No	Change "HSE-8 Regulatory Compliance Section" to "ESH-19 Hazardous and Solid Waste Group".	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.6	4 of 17	E.6.9.	No	Change "shows" to "show".	1	A.2
E.6	4 of 17	E.6.9.	No	Insert "," after "refrigeration is required".	1	A.2
E.6	5 of 17	E.6.9.1.2.	No	Insert "the" between "in" and "field log book" in the third bullet for trowel or scoop.	1	A.2
E.6	5 of 17	E.6.9.1.2.	No	Change "further" to "farther" in fourth bullet for the Veihmeyer sampler.	1	A.2
E.6	7 of 17	E.6.9.2.2.	No	Change "Liquid" to "liquid" in sixth bullet.	1	A.2
E.6	7 of 17	E.6.9.2.2.	No	Change "storethe" to store the".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Change "accopanying" to "accompanying".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Change "seperate" to "separate".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Change "8I/1" to "8-1/2".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Change "entires" to "entries".	1	A.2
E.6	8 of 17	E.6.9.3.f.	No	Change "Descrioption" to "Description".	1	A.2
E.6	8 of 17	E.6.9.3.f.	No	Change "smapling" to "sampling".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Delete "(Figure E.8.8)".	1	A.2
E.6	8 of 17	E.6.9.3.	No	Change "completely" to "completed".	1	A.2
E.6	9 of 17	E.6.10.	No	Change "Permitee" to "Permittee".	1	A.2
E.6	9 of 17	E.6.10.	No	Change "wiht" to "with".	1	A.2
E.6	9 of 17	E.6.11.	No	Change Permitee" to "Permittee".	1	A.2
E.6	9 of 17	E.6.11.	No	Change "Director" to "Secretary".	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.6	9 of 17	E.6.11.A.	No	Change "p[aragraph" to "paragraph".	1	A.2
E.6	11 of 17	Table E.6.1	No	Change "E.5.1" to "E.6.1".	1	A.2
E.6	11 of 17	Table E.6.1	No	Change "EID" to "NMED" (two times).	1	A.1
E.6	12 of 17	Table E.6.2	No	Change "Berylium" to "Beryllium".	1	A.2
E.6	12 of 17	Table E.6.2	No	Change "Chloronated" to "Chlorinated".	1	A.2
E.6	12 of 17	Table E.6.2	Yes[1]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.6	12 of 17	Table E.6.2	Yes[1]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a
E.6	13 of 17	Table E.6.3	No	Change "2654" to "264".	1	A.2
E.6	14 of 17	Figure E.6.1	No	Update Figure E.6.1 to include new location of Modular units plus new Modular units.	1	A.1

[1] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.6
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.6
NM 0890010515-1

E.6 CLOSURE FOR TA-54 AREA L HAZARDOUS WASTE TRANSFER/STORAGE UNIT

E.6.1 TA-54 Area L Description

The storage unit consists of a single-story transfer/storage building, Facility Number 54-31, encompassing 196 square feet. Liquid wastes are segregated into compatible types and placed upon one of the three fiberglass grates inside the building. This closure plan applies to the transfer/storage unit only.

The remainder of TA-54 Area L consists of liquid waste storage and treatment tanks, a roofed concrete containment structure, two modular storage units and specified areas within the fenced portions of Area L for storage of solid containerized waste. These areas are used for the accumulation, packaging, and storage of waste containers, which are generated throughout the laboratory and delivered to Area L routinely. Wastes in small containers are stored in the modular units before being put into lab-packs. Wastes suitable for recycling are consolidated into drums, and any damaged or leaking drums are repackaged into larger drums in this area. Solid containerized wastes are stored in cleared areas within the fenced portions of Area L. Four treatment storage tanks are also located at Area L. They are used to neutralize, oxidize, and evaporate waste. The tanks are located on a bermed concrete pad. Each of these units has a separate closure plan.

E.6.2 Estimate of Maximum Waste in Storage and Treatment

The maximum amount of waste stored in the transfer/storage building at Area L is 440 gallons. Small quantities in excess of this amount may be temporarily present on any one day while actively being handled.

E.6.3 Description of Waste Handled

A wide variety of wastes generated throughout the Laboratory are brought to Area L, including wastes from basic and applied chemistry R & D programs (small quantities of different acids, bases, organics, inorganics and reactive materials from transfer, accumulation, or storage sites), ~~transfer/storages),~~ processing wastes (sludge resulting from treatment ~~either~~ at Area L ~~or at TA-50-1 Batch Treatment Plant~~), and chemically contaminated equipment, to be stored, recycled, treated or packed for off site disposal at a permitted facility. Any characteristic or listed waste used at the laboratory could have been handled at one time in the transfer/storage unit.

E.6.4 Partial Closure

No partial closure of the transfer/storage unit is anticipated.

E.6.5 Closure Procedure

Before decontamination, all wastes in storage will either be treated on site or disposed of off site. Given the diversity of wastes handled, it is not possible to estimate the exact wastes on hand at the initiation of closure and, therefore, the final disposition of the wastes. In general, recyclable wastes will be reused internally or recycled to users off site. Permitted wastes will be burned at the permitted incinerator at TA-50-37. Any wastes compatible with permitted treatment at the TA-50-1 Batch Waste Treatment Unit or the TA-54, Area L treatment tanks will be so treated. The remaining wastes will be transported off site to a permitted disposal facility. If on site treatment is not possible due to prior closure of the permitted units, off site disposal will occur.

Following removal of the wastes, the transfer/storage building will be decontaminated by washing with Liquinox(@) or Alconox(@) in water. The resulting used wash solution will be placed in approved DOT containers, sampled, analyzed and transported off site to a permitted treatment or disposal facility.

E.6.5.1 Waste Removal

The waste on site at the start of closure includes wastes in all size containers, from vials and ampules to 55-gallon drums. Contained wastes will be handled with hand trucks or forklifts as necessary. Trucks of adequate size will be used to move packed wastes to off site treatment or disposal facilities, and a forklift is suitable for loading the trucks or to move wastes to the treatment tanks at Area L. All wastes shipped off site will be in approved Department of Transportation (DOT) containers and manifested in accordance with the facility permit. All waste transporters will have an EPA identification number in accordance with ~~HWMR-S~~ HWMR-5, Part IV, Section 263.11.

E.6.5.2 Decontamination

All floor and wall surfaces, as well as any equipment present, will be washed down using a solution of Liquinox(@) or Alconox(@) in warm water. Areas will be scraped or brushed clean as necessary to remove any residues. The floor is sloped to sumps, and wash water will flow into them. The water in each sump will be tested using the sampling and analytical procedures described in section E.6.9. Afterwards, the water will be removed from each sump with a vacuum truck or pumped into drums with a hand pump, sampled, analyzed and transported off site for treatment or disposal. This washing procedure will be repeated until decontamination of the cells is demonstrated by testing of the wash water. Following decontamination, the building and equipment will be handled as nonregulated waste. The inside of the vacuum truck, if used, will be rinsed when its service is complete and the rinse water will be placed in approved DOT containers for off site treatment or disposal. Every effort will be made to minimize the volume of wash and rinse water generated by decontamination.

E.6.5.3 Soil Decontamination

Soil sampling will be conducted as described in Section E.6.9. to determine if hazardous wastes have been tracked outside of contaminated areas.~~, as described in section E.6.9.~~ After the building is decontaminated, it will be removed and three soil samples, one under each sump, will be collected. Three soil samples will be taken at each edge of the asphalt apron around the transfer/storage building.

Each will be made up of cores six inches deep taken six inches off the asphalt edge and equally spaced to cover each edge.

If contamination is found in any of these samples, the limits of the sampling area will be expanded by establishing a three foot sampling grid around a single contamination point, or centered on the area defined by the locus of multiple contamination points, to determine the outside perimeter of the contamination. Sampling will be continued until the extent of contamination is determined. Background samples will be taken in the same manner as the initial closure soil survey.

Once the limits of the contaminated area are determined, the contaminated soil will then be removed to a depth of 6 inches and handled as a regulated waste. The adequacy of decontamination is determined by additional sampling. Sampling, analysis, and documentation procedures are detailed in section E.6.9. In order to demonstrate final decontamination, soil samples will be analyzed for all ~~HWMR-5~~ HWMR-5, Part V, Section 264, Appendix IX constituents. Analysis and quality assurance/quality control will follow methods defined in SW-846.

~~E.6.5.5~~ E.6.5.4 Personnel Protection

Personnel who are washing equipment will wear rubber gloves, neoprene acid/solvent resistant coveralls, rubber boots, and a face ~~shied~~ shield. The Laboratory's Industrial Hygiene and Safety Group (~~HSE-5~~ ESH-5) will review the site survey analytical data and may recommend additional protective clothing.

~~E.6.5.6~~ E.6.5.5 Equipment Decontamination

Shovels, drum trucks and other equipment used for decontamination will be scraped and brushed to remove residue, and the residue collected will be placed in drums for disposal off site at a permitted facility. The equipment will be placed on a 30 mil plastic sheet that is bermed to contain liquids and pressure washed with water and detergent. Large equipment such as backhoes and forklifts will also be washed. Testing will be performed on this water to determine if decontamination is adequate. Washing is considered adequate to decontaminate the equipment. The wash water will be placed in the treatment tanks to evaporate and the plastic lining and residue will be packed in DOT approved containers for off site disposal at a permitted facility. If evaporation is not an available treatment, the wastes will be packed and shipped off site for treatment and disposal.

E.6.6 Decontamination Verification

A minimum of two samples of the clean Liquinox(@) or Alconox(@) solution will be sampled as background for wash water and, along with the wash water samples, analyzed for the constituents listed in HWMR-5, Part V, Section 264, Appendix IX. Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused wash water or background sample. Hazardous constituents detected in the background sample will invalidate that sample as true background unless adequate explanation of their source is provided.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.6.7 Closure Schedule

The year of closure is 2100. Contracting and closure activities will observe the schedule given in Table E.6.1. Closure is estimated to take 340 days. Soil sampling and the decontamination contractor selection may be completed before closure begins. Several of the closure steps may occur simultaneously.

Contracts for analytical work and, if necessary, soil removal are expected to exceed $100,000. The Laboratory is required by policy to put the work out for bid, and ninety days are required to solicit and process the bids. The location of the site is prone to snow cover in the winter months. The closure may be delayed until the site is free of snow and the ground is thawed adequately to allow the soil sampling and other closure operations. The schedule includes a weather factor to allow for this delay.

E.6.8 Closure Certification

An independent, registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the ~~Director of the NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by the ~~HSE-8 Regulatory Compliance Section~~ ESH-19 Hazardous and Solid Waste Group.

E.6.9 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 or other EPA approved procedure may be used if conditions or experience ~~shows~~ show the alternate method to be more appropriate. Disposable samplers may be used.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW-846.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

E.6.9.1 Soil and Solid Residues Sampling

The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be reactive hazardous waste.

E.6.9.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.6.9.1.2 Sampling procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.

- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.
- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.
- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.
- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.6.9.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure E.6.2., the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

E.6.9.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.6.9.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.

- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the ~~Liquid~~ liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or ~~storethe~~ store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.6.9.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.6.3.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient

temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.6.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two page record with the original ~~accopanying~~ accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.6.5.

A ~~seperate~~ separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8 ½ ~~1/1~~ by 11-inch format. Minimum ~~entires~~ entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and business address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. ~~Descrioption~~ Description of each ~~smapling~~ sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc.);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc.);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc.);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. ~~(Figure E.8.8).~~ The request sheet has two parts: field and laboratory. The field portion of this form must be ~~completely~~ completed by the person collecting the sample and include most of the pertinent

information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.6.10 Quality Assurance/Quality Control

The ~~Permitee~~ Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance ~~wiht~~ with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.6.11 Final Closure Report

Upon completion of the closure activities, the ~~Permitee~~ Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in ~~p[aragraph~~ paragraph E.6.8.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,
2. Sampling location,
3. The datum reported,
4. Detection limit for each datum,
5. A measure of analytical precision (e.g. uncertainty, range, variance),
6. Identification of analytical procedure, and
7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books,
2. Laboratory sample analysis reports,
3. The QA/QC documentation, and
4. Chain of custody records.

F. Disposal location of all regulated and unregulated residues.

G. A certification of accuracy of the report.

TABLE ~~E.5.1.~~ E.6.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify ~~EID~~ NMED of the closure	-90 Days
Let contract request for proposals	-90 Days
Receive proposals	-30 Days
Select and award contract	-10 Days
Begin closure activities	Day 0
Disposal of final wastes	Day 60
Internal/external washdown	Day 70
Equipment disassembly	Day 95
Individual component decontamination	Day 105
Residue removal from concrete pad/floor	Day 125
Floor decontamination	Day 140
Final building clean up and removal	Day 160
Initial soil sampling and analysis	Day 190
Expanded sampling and analysis (contingency)	Day 210
Contaminated soil removal	Day 250
Resample and analysis	Day 285
Decontamination verification	Day 310
Final closure report submitted to ~~EID~~ NMED	Day 340

NOTE: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

TABLE E.6.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	pH
Cadmium	Acid-extractable semivolatile organics	
Chromium	Base-neutral extractable semivolatile organics	
Lead	Organochorine pesticides	
Mercury	~~Chloronated~~ Chlorinated herbicides	
Selenium	Phenols	
Silver		
Nickel		
~~Berylium~~ Beryllium		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.6.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Washdown solutions before use	X	X	X
Washdown solutions after use	X	X	X
Soils background	X	X	X
Soil samples	X	X	X
Final decontamination samples	[a]	[a]	[a]

NOTES: Analytical parameters are given in Table E.6.2.

[a]Parameters given in HWMR-5, Part V, Section ~~2654~~ 264, Appendix IX

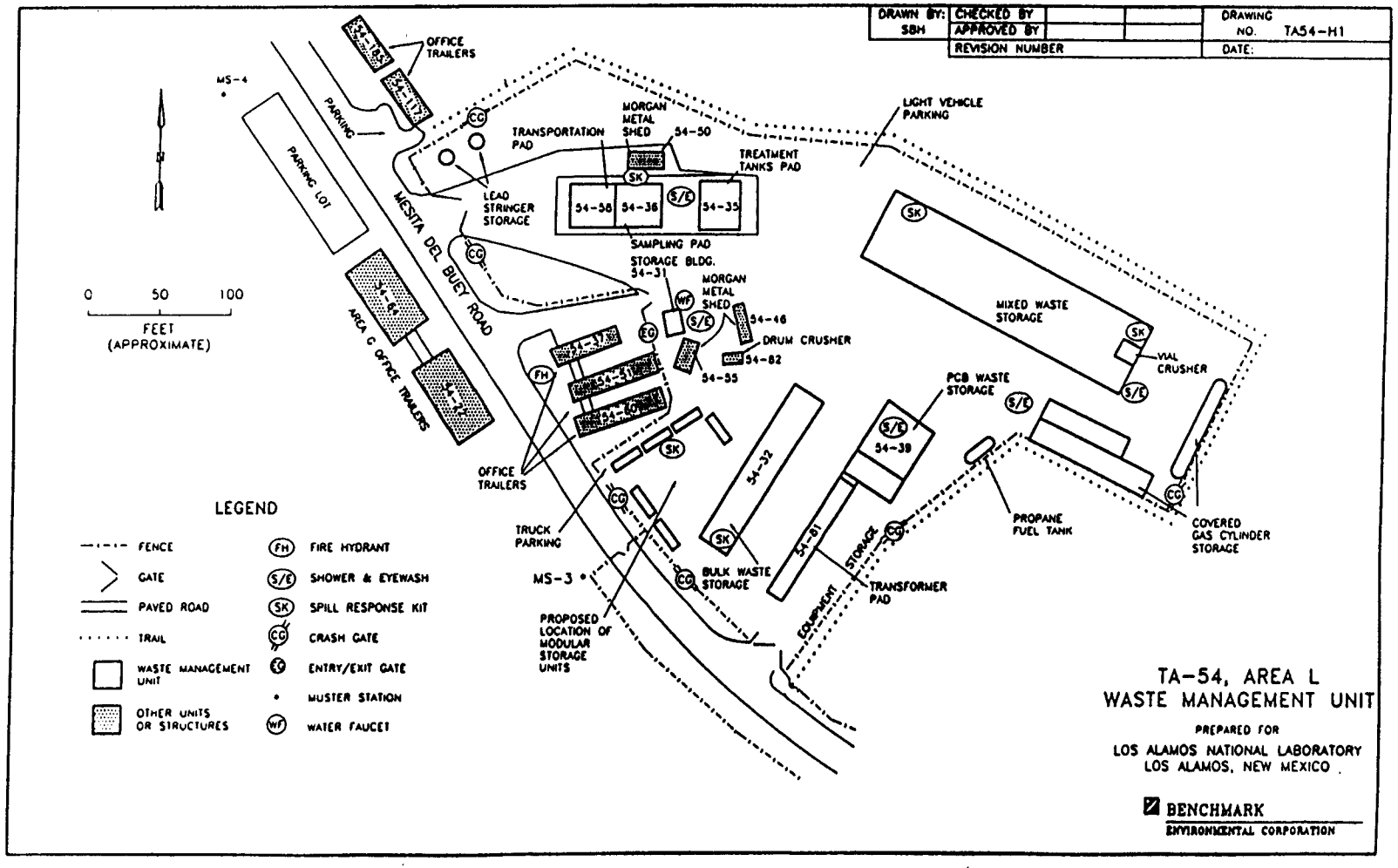

FIGURE E.6.1
TA-54 AREA L WASTE MANAGEMENT UNITS

FIGURE E.6.2
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.6.3
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.6.4
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.6.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler
☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.7	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.7	1 of 17	E.7.1.	No	Change "labpacks" to "lab packs".	1	A.2
E.7	1 of 17	E.7.1.	No	Insert "-" between "55" and "gallon" (two times); "220" and "gallon" and "330" and "gallon".	1	A.2
E.7	1 of 17	E.7.1.	Yes[1]	Change "Storage containers, meeting DOT specifications" to "DOT-approved storage containers".	1	A.1
E.7	1 of 17	E.7.1.	No	Delete duplicate occurrence of "concrete".	1	A.2
E.7	1 of 17	E.7.3.	No	Change "sotred" to "stored".	1	A.2
E.7	1 of 17	E.7.4.2.	No	Change "boots," to "boots.".	1	A.2
E.7	1 of 17	E.7.4.2.	No	Change "Industrial Hygiene Group, HSE-5" to "Industrial Hygiene and Safety Group, (ESH-5)".	1	A.1
E.7	2 of 17	E.7.4.2.	No	Change "frecycled" to "recycled".	1	A.2
E.7	2 of 17	E.7.4.2.	Yes[2]	Delete "the TA-50 1 Batch Waste Treatment Unit or".	1	A.1
E.7	2 of 17	E.7.4.2.	No	Change "containers and taken to TA-54, Area L for sampling, analysis" to "containers, and taken to TA-54, Area L for sampling and analysis,".	1	A.1, A.2
E.7	2 of 17	E.7.4.2.	No	Change "waster" to "water".	1	A.2
E.7	2 of 17	E.7.4.3.	No	Change "upgradient" to "up-gradient".	1	A.2
E.7	2 of 17	E.7.5.	No	Change "sotred" to "stored".	1	A.2
E.7	3 of 17	E.7.5.	No	Change "fwill" to "will".	1	A.2
E.7	3 of 17	E.7.5.	No	Change "washwater" to "wash water".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.7	3 of 17	E.7.5.	No	Change "Director" to "Secretary".	1	A.1
E.7	3 of 17	E.7.7.	No	Change "Permitee" to "Permittee".	1	A.2
E.7	3 of 17	E.7.7.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.7	3 of 17	E.7.7.	No	Change "the HSE-8 Regulatory Compliance Section" to "the ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.7	3 of 17	E.7.8.	No	Change "E.5.8" to "E.7.8".	1	A.2
E.7	4 of 17	E.7.8.	No	Change "Containers" to "containers".	1	A.2
E.7	4 of 17	E.7.8.1.1.	No	Change "sir-dried" to "air-dried".	1	A.2
E.7	5 of 17	E.7.8.1.2.	No	Change "further" to "farther" on the fourth bullet for Veihmeyer samplers.	1	A.2
E.7	5 of 17	E.7.8.1.2.	No[2]	Change "Rotate the sampler handle (hammer) until it just clears the two ear-like protusions on the drive head and rotate about 90 degrees" to "Rotate the sampler at least two revolutions to shear off the sample bottom" on the seventh bullet for the Veihmeyer sampler.	1	A.2
E.7	5 of 17	E.7.8.1.2.	No	Change "protusions" to "protrusions".	1	A.2
E.7	5 of 17	E.7.8.2.	No	Change "useed" to "used".	1	A.2
E.7	5 of 17	E.7.8.2.	No	Change "E.7.2" to "E.7.3".	1	A.2
E.7	5 of 17	E.7.8.2.1.	No	Change "E.7.7.2.1" to "E.7.8.2.1".	1	A.2
E.7	5 of 17	E.7.8.2.1.	No	Change "sir-dried" to "air-dried".	1	A.2
E.7	6 of 17	E.7.8.2.1.	No	Change "an" to "and".	1	A.2
E.7	6 of 17	E.7.8.2.2.	No	Change "E.7.8.2.1" to "E.7.8.2.2".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.7	6 of 17	E.7.8.2.2.	No	Change "own" to "down".	1	A.2
E.7	6 of 17	E.7.8.2.2.	No	Change "jplastic" to "plastic".	1	A.2
E.7	7 of 17	E.7.8.3.	No	Change "label" to "seal".	1	A.2
E.7	7 of 17	E.7.8.3.	No	Change "ambnient" to "ambient".	1	A.2
E.7	7 of 17	E.7.8.3.	No	Change "imprtant" to "important".	1	A.2
E.7	7 of 17	E.7.8.3.	No	Change "shipmemnt" to "the shipment".	1	A.2
E.7	7 of 17	E.7.8.3.	No	Change "8 I/1" to "8-1/2".	1	A.2
E.7	7 of 17	E.7.8.3.i.	No	Change "smapling" to "sampling".	1	A.2
E.7	8 of 17	E.7.8.3.	No	Change "completely" to "completed".	1	A.2
E.7	8 of 17	E.7.8.3.	No	Change "completyed" to "completed".	1	A.2
E.7	8 of 17	E.7.9.	No	Change "Permitee" to "Permittee".	1	A.2
E.7	8 of 17	E.7.9.	No	Change "follwoed" to "followed".	1	A.2
E.7	8 of 17	E.7.10.	No	Change "Permitee shal" to "Permittee shall".	1	A.2
E.7	8 of 17	E.7.10.	No	Change "Director" to "Secretary".	1	A.1
E.7	10 of 17	Table E.7.1	No	Change "EID" to "NMED" (two times).	1	A.1
E.7	11 of 17	Table E.7.2	No	Change "Berylium" to Beryllium".	1	A.2
E.7	11 of 17	Table E.7.2	No	Change "Chloronated" to "Chlorinated".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.7	11 of 17	Table E.7.2	Yes[4]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.7	11 of 17	Table E.7.2	Yes[4]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a
E.7	13 of 17	Figure E.7.1	No	Change "E-7.1" to "E.7.1" for consistency.	1	A.2
E.7	14 of 17	Figure E.7.2	No	Change "E-7.2" to "E.7.2" for consistency.	1	A.2
E.7	14 of 17	Figure E.7.2	No	Update Figure E.7.2 to include new location of Modular units plus new Modular units.	1	A.1
E.7	16 of 17	Figures E.7.4, E.7.5, and E.7.6	No	Change "E-7.4," "E-7.5," and "E-7.6" to "E.7.4," "E.7.5," and "E.7.6," respectively.	1	A.2

[1] DOT has eliminated specifications for packagings and has adopted performance-oriented packagings. This modification incorporates this change in DOT requirements.

[2] The Batch Waste Treatment Unit (BWTU) was closed pursuant to 20 NMAC 4.1 Part V, 264 Subpart G, in 1994. This change in the text shows that the BWTU is no longer a permitted unit.

[3] Two bulleted items under Veihmeyer sampler were inadvertently combined, with some information being deleted, during previous work with the section. This modification corrects the error by adding the missing information and deleting language that appears in the eighth bullet.

[2] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.7
NM0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.7
NM0890010515-1

E.7 STORAGE CONCRETE CONTAINMENT UNITS

E.7.1 Description

There are two units used to store hazardous chemical waste ~~labpacks~~ lab packs in 55-gallon drums and other DOT-approved storage containers, ~~meeting DOT specifications,~~ at TA-50 and one at TA-54, Area L. Each unit consists of a roofed ~~concrete~~ concrete containment structure encompassing 1,596 square feet. The wastes are segregated into compatible waste types upon arrival at the unit and placed within one of the six storage cells. Wastes are stored in 55-gallon drums, 220-gallon polyethylene containers or 330-gallon polyethylene containers. All containers meet DOT specifications. Two units are located south of Building TA-50-37 (Figure E.7.1) and the other is at TA-54, Area L (Figure E.7.2).

E.7.2 Estimate of Maximum Waste in Storage

The maximum amount of waste in storage at any one unit is 65 cubic meters (17,220 gallons).

E.7.3 Description of Waste Handled

A wide variety of wastes generated throughout the Laboratory are stored at the units, including wastes from basic and applied chemistry R & D programs (small quantities of different acids, bases, organics, inorganics, and reactive metals), processing waste (sludge resulting from treatment at TA-50-1 Batch Treatment Plant), and chemically contaminated equipment packed for off site disposal at a permitted facility. Any characteristic or listed waste used at the laboratory may be ~~sotred~~ stored at any unit. The units at TA-50 normally store only characteristic waste code D002 and listed wastes F001 through F009, but may store any regulated waste generated by the Laboratory.

E.7.4 Closure

E.7.4.1 Partial Closure

Partial closure would consist of one unit while leaving the other units in service. In such an event, the following procedures would apply to the unit to be closed.

E.7.4.2 Closure Procedure

Personnel involved in decontaminating the unit will wear protective equipment, including, acid/solvent resistant coveralls, head protection, neoprene-coated gloves, and ~~boots,~~ boots. Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators or other protective equipment will be used if specified by the Laboratory's Industrial Hygiene and Safety Group, ~~HSE-5~~ (ESH-5), following a field inspection. Before decontamination, all wastes in storage will either be treated or shipped off site for disposal at a permitted facility. Given the diversity of wastes handled, it is not possible to estimate the exact wastes on hand at

the initiation of closure and, therefore, the final disposition of the wastes. In general, recyclable wastes will be reused internally or ~~freecyeled~~ recycled to users off site. Organic wastes will be burned at the permitted Incinerator at TA-50-37. Any wastes compatible with permitted treatment at ~~the TA-50-1 Batch Waste Treatment Unit or~~ the TA-54, Area L treatment tanks will be so treated. The remaining wastes will be transported off site to a permitted facility.

Following removal of the wastes on site at the start of closure, the storage unit will be decontaminated by washing with Liquinox(@) and Alconox(@) in water. Wash water is expected to be contained within the curbed area and collect in the sump. If spills occur outside the curbed area, the spilled materials will be absorbed on suitable material, collected and placed in containers. The area affected by the spill will be included in the final cleanup determination. The resulting wash solutions will be placed in approved DOT containers, and ~~tken~~ taken to TA-54, Area L for sampling~~,~~ and analysis, and shipped off site for treatment or disposal at a permitted facility. The protective clothing and tools used during the wash down will be cleaned with detergent and water. The wash ~~waster~~ water will be collected and analyzed. If the wash water is not hazardous, the water will be discharged to the industrial waste water sewer. If the wash water contains hazardous constituents, it will be treated on site or transported off site to a permitted facility. Spill residues, sludges, mops and rags used for clean-up will be placed in containers for transport to Area L, with ultimate off site disposal at a permitted facility.

E.7.4.3 Soil Decontamination

Soil sampling will be conducted to determine if hazardous wastes have been tracked outside of contaminated areas, as described in section E.7.8. After the building is decontaminated, three soil samples will be collected along each short edge of the asphalt apron around the building and ten along each long side. Each will be made up of cores six inches deep taken six inches off the asphalt edge and equally spaced to cover each edge.

If contamination is found in any of these samples, the limits of the sampling area will be expanded by establishing a three foot sampling grid around a single contamination point, or centered on the area defined by the locus of multiple contamination points, to determine the outside perimeter of the contamination. Sampling will be continued until the extent of the contamination is determined. Background samples will be taken from an uncontaminated area up-gradient from and unaffected by the waste management activity, in the same manner as the initial closure soil survey.

Once the limits of the contaminated area are determined, the contaminated soil will then be removed to a depth of 6 inches and handled as regulated waste. The adequacy of decontamination is determined by additional sampling. Sampling, analysis, and documentation procedures are detailed in section E.6.9. In order to demonstrate final decontamination, soil samples will be analyzed for all HWMR-5, Part V, Section 264, Appendix IX constituents. Analysis and quality assurance/quality control will follow methods defined in SW-846.

E.7.5 Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox(@) or Alconox(@) solution in water and analyzed for the constituents listed in Table E.7.2. The constituents listed in Table E.7.2 include regulated constituents normally ~~sotred~~ stored at the unit.

One additional clean solution sample ~~fwill~~ will be taken for each additional washdown event. These analytical results provide background data for decontamination verification.

Used washdown solutions will be analyzed for the constituents listed in Table E.7.2. Analytical procedures will conform to methods found in SW-846. The constituents listed in Table E.7.2. include regulated constituents normally stored in the units. A scan for volatile and semivolatile organics is performed to ensure that solvents commonly used within the Laboratory have not contaminated the unit.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused ~~washwater~~ wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.7.6 Closure Schedule

The year of closure for either unit is 2100. Closure will observe the schedule given in Table E.7.1. Closure is expected to take 270 days.

E.7.7 Closure Certification

An independent registered professional engineer and the ~~Permitee~~ Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the ~~Director of NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE office and one copy maintained by ~~the HSE-8 Regulatory Compliance Section~~ the ESH-19 Hazardous and Solid Waste Group.

~~E.5.8~~ E.7.8 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more appropriate. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice.

One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample ~~Containers~~ containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW-846.

E.7.8.1 Soil and Solid Residues Sampling

The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be hazardous waste.

E.7.8.1.1 Cleaning of Sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and ~~sir-~~ air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.7.8.1.2 Sampling Procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.

- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.

- Record the length of the tube that penetrated the material.

- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.

- Rotate the sampler at least two revolutions to shear off the sample bottom. ~~handle (hammer) until it just clears the two ear-like protusions on the drive head and rotate about 90 degrees.~~

- Lower the sampler handle (hammer) until it just clears the two ear-like ~~protusions~~ protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.7.8.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water ~~useed~~ used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure ~~E.7.2~~ E.7.3, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

~~E.7.7.2.1~~ E.7.8.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and ~~sir-~~ air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using the ramrod and fiber reinforced paper towels, the ~~coliwasa~~

COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean ~~an~~ and protected area.

~~E.7.8.2.1~~ E.7.8.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.
- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod ~~own~~ down until the handle sits against the sampler's locking block.
- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the Liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.
- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in ~~jplastic~~ plastic bags for subsequent disposal.

E.7.8.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample ~~label~~ seal is shown in Figure E.7.4.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ~~ambnient~~ ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.7.5.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially ~~imprtant~~ important when the sample is to be introduced as evidence in litigation. This is a two page record with the original accompanying ~~shipmemnt~~ the shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.7.6.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-½ ~~1/1~~ by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc);

i. Map or photograph of the ~~smapling~~ sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be ~~completely~~ completed by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be ~~completyed~~ completed by the laboratory personnel when the sample is received.

E.7.9 Quality Assurance/Quality Control

The ~~Permitee~~ Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan shall be prepared and ~~follwoed~~ followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.7.10 Final Closure Report

Upon completion of the closure activities, the ~~Permitee shal~~ Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.7.7.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,

2. Sampling location,

3. The datum reported,

4. Detection limit for each datum,

5. A measure of analytical precision (e.g. uncertainty, range, variance),

6. Identification of analytical procedure, and

7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books,

2. Laboratory sample analysis reports,

3. The QA/QC documentation, and

4. Chain of custody records.

F. Disposal location of all regulated and unregulated residues.

G. A certification of accuracy of the report.

TABLE E.7.1.
CLOSURE SCHEDULE

Activity	Maximum Time Required
Notify ~~EID~~ NMED of the closure	-90 Days
Advertise for proposals	-90 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Begin closure activities	Day 0
Removal of wastes	Day 60
Wash down complete	Day 80
Sampling of wash water	Day 90
Soil sampling and analysis	Day 120
Soil removal	Day 160
Soil sampling and analysis	Day 190
Final clean up	Day 210
Decontamination verification	Day 240
Submit final report to ~~EID~~ NMED	Day 270

NOTES: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

This schedule applies equally to partial closure and final closure.

TABLE E.7.2.
ANALYTICAL PARAMETERS

Total Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	Ignitability
Cadmium	Acid-extractable semivolatile organics	Reactivity
Selenium	Base-neutral extractable semivolatile organics	pH
Lead	Phenols	
Mercury	Organochloride pesticides	
~~Berylium~~ Beryllium	~~Chloronated~~ Chlorinated herbicides	
Chromium		
Silver		
Nickel		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.7.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Washdown solutions before use	X	X	X
Washdown solutions after use	X	X	X
Soils background	X	X	X
Soil samples	X	X	X
Final decontamination samples	[a]	[a]	[a]

NOTES: Analytical parameters are given in Table E.7.2.

[a]Parameters given in HWMR-5, Part V, Section 264, Appendix IX

FIGURE ~~E.7.1~~ E.7.1
LOCATIONS OF TA-50 CHEMICAL WASTE INCINERATOR AND CONTAINER STORAGE UNITS

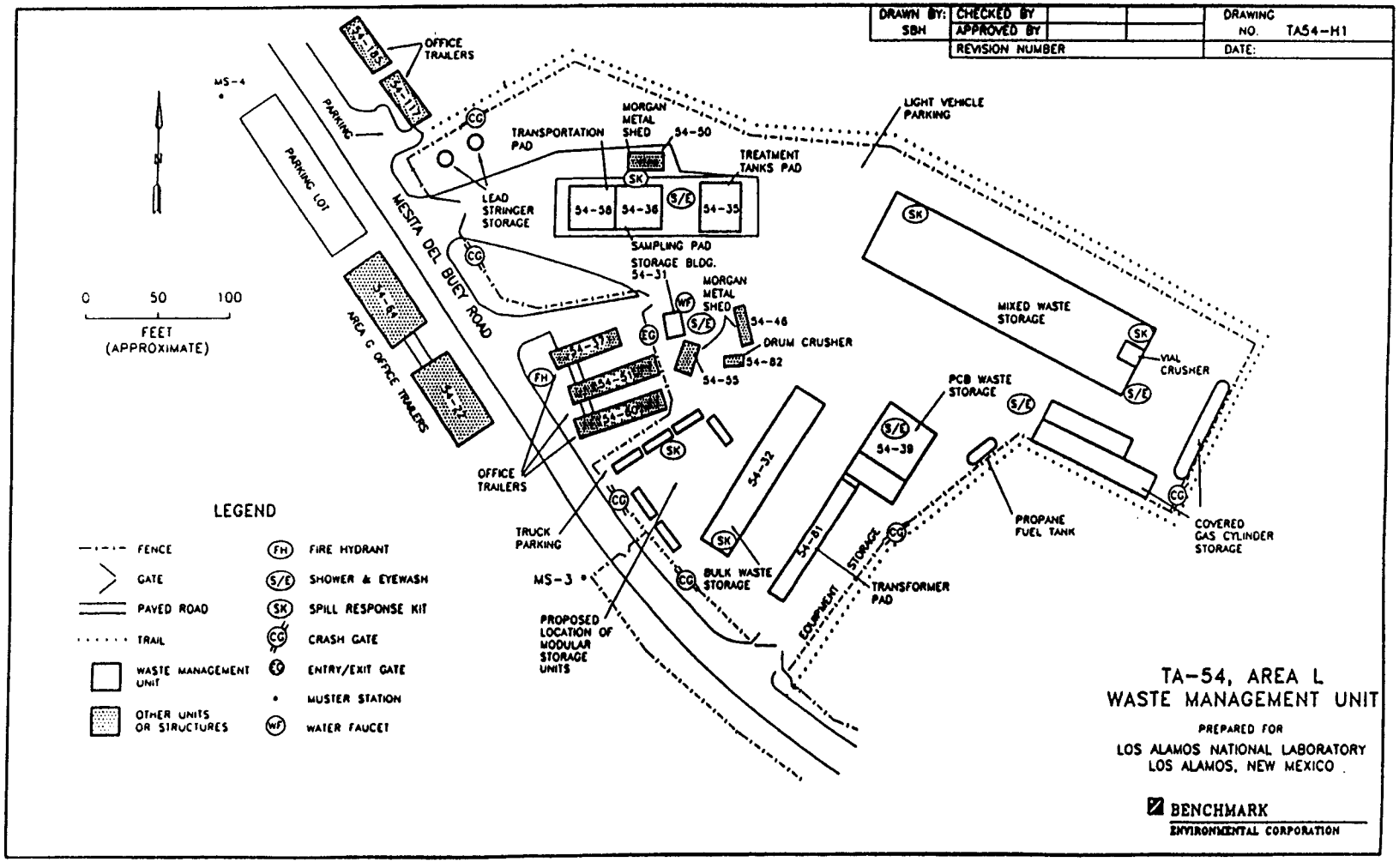

FIGURE ~~E.7.2~~ E.7.2
TA-54 AREA L WASTE MANAGEMENT UNITS

FIGURE E.7.3
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE ~~E-7.4~~ E.7.4
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE ~~E-7.5~~ E.7.5
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE ~~E.7.6~~ E.7.6
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.8	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.8	1 of 18	E.8.1.	No	Delete "are" from before "located at Area L".	1	A.2
E.8	1 of 18	E.8.1.	No	Change "laboratory" to "Laboratory".	1	A.2
E.8	1 of 18	E.8.3.	Yes[1]	Change "The wastes treated or stored normally at the tanks are ammonium bifluoride and lithium hydride" to "The waste treated or stored normally in the tanks is barium-contaminated sand".	1	A.1
E.8	1 of 18	E.8.3.	No	Insert "or chemical treatment" after evaporation.	1	A.1
E.8	2 of 18	E.8.5.	Yes[2]	Change "Any waste compatible with permitted treatment at the TA-50-1 Batch Waste Treatment Unit will be so treated: to "Any waste compatible with on-site treatment will be so treated."	1	A.1
E.8	2 of 18	E.8.5.	No	Change "on site" and "off site" to "on-site" and "off-site".	1	A.2
E.8	2 of 18	E.8.5.1.	No	Change "HWMR-S" to "HWMR-5".	1	A.2
E.8	2 of 18	E.8.5.2.	No	Change "tank" to "tanks".	1	A.2
E.8	2 of 18	E.8.5.3.	No	Delete duplication of "eight".	1	A.2
E.8	3 of 18	E.8.5.4.	No	Change "Industrial Hygiene Group (HR-5)" to "Industrial Hygiene and Safety Group (ESH-5)".	1	A.1
E.8	3 of 18	E.8.6.1.2.	No	Change "washwater" to "wash water".	1	A.2
E.8	4 of 18	E.8.6.2.	No	Change "Criteria" to "criteria".	1	A.2
E.8	4 of 18	E.8.8.	No	Change "the ES-8 Regulatory Compliance Section" to "the ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.8	5 of 18	E.8.9.	No	Change "shows" to "show".	1	A.2
E.8	5 of 18	E.8.9.1.2.	No	Move "trowel or scoop" from title and place as subheading.	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.8	6 of 18	E.8.9.1.2.	No	Change "further" to "farther" on fourth bullet for the Veihmeyer sampler.	1	A.2
E.8	7 of 18	E.8.9.2.2.	No	Change "Liquid" to "liquid" on the sixth bullet.	1	A.2
E.8	9 of 18	E.8.9.3.	No	Change "completely" to "completed".	1	A.2
E.8	11 of 18	Table E.8.1.	No	Change "Some" to "some".	1	A.2
E.8	12 of 18	Table E.8.2.	No	Insert "organics" after each use of "semivolatile".	1	A.2
E.8	12 of 18	Table E.8.2.	No	Change "Berylium" to "Beryllium".	1	A.2
E.8	12 of 18	Table E.8.2.	No	Change second use of "(TCLP)" to "TCLP".	1	A.2

[1] For some time, LANL has exclusively treated barium-contaminated sand in the treatment tanks at TA-54, Area L. This modification reflects current practice.

[2] The Batch Waste Treatment Unit (BWTU) was closed pursuant to 20 NMAC 4.1, Part V, 264 Subpart G, in 1994. This change in the text was made to show that the BWTU is not longer a permitted unit.

CLOSURE PLAN
PARTIAL CLOSURE
PERMIT ATTACHMENT E.8
NM 0890010515-1

CLOSURE PLAN
PARTIAL CLOSURE
PERMIT ATTACHMENT E.8
NM 0890010515-1

E.8 PARTIAL CLOSURE FOR TA-54 AREA L HAZARDOUS WASTE TREATMENT/STORAGE TANKS

E.8.1 Unit Description

Two 1,660-gallon, 10-gauge steel treatment/storage tanks ~~are~~ located at Area L will be closed. They are lined with plastic (except when treating reactive wastes) and used to neutralize, oxidize, and evaporate waste. The tanks are located on a bermed concrete pad. (Figure E.8.1) This closure plan addresses only the two tanks indicated (Figure E.8.2).

The remainder of TA-54, Area L storage units consist of a single-story metal transfer/storage building, a roofed concrete storage pad, six transportable storage buildings and specified areas within the fenced portions of Area L for storage of solid containerized waste. These areas are used for the accumulation, packing, and storage of waste containers, which are generated throughout the ~~laboratory~~ Laboratory and delivered to the facility routinely. Liquid wastes are segregated into compatible types and placed inside the transfer/storage building or within one of the storage cells of the roofed concrete pad. Wastes in small containers are put into one of the transportable storage buildings or the transfer/storage building for placing into lab packs. Wastes suitable for recycling are consolidated into drums, and any damaged or leaking drums are repacked into larger drums in this area. Solid containerized wastes are stored on pallets, or otherwise elevated four inches, in cleared areas within the fenced portions of Area L.

E.8.2 Estimate of Maximum Waste in Storage and Treatment

The maximum amount of waste that could be stored in the tanks is 3,320 gallons if the tanks were filled with no freeboard. The expected maximum volume of waste is 2,860 gallons.

E.8.3 Description of Waste Handled

The ~~wastes~~ waste treated or stored normally ~~at~~ in the tanks ~~are ammonium bifluoride and lithium hydride~~ is barium-contaminated sand. Occasionally plating bath treatment residues from treating F003, F004, F005 and F006 wastes are also treated here. Potentially, any wastes or clean up wastes amenable to evaporation or chemical treatment may be treated in the tanks. Therefore, any waste generated at the laboratory potentially has, or could be, treated or stored in the tanks.

E.8.4 Partial Closure

Partial closure will consist of closing two of the existing four tanks. All portions of this plan addressing tank decontamination shall apply to the closing of two tanks.

E.8.5 Closure Procedure

Cleanup and closure will be done in sequential order, culminating in the disposal of any residues or contaminated material by shipment off site to a permitted facility. Before decontamination, all wastes in storage will either be treated on site or disposed of off site. Given the diversity of wastes handled, it is not possible to estimate the exact wastes on hand at the initiation of closure and, therefore, the final disposition of the wastes. In general, recyclable wastes will be reused internally or recycled to users off site. Permitted wastes will be burned at the permitted incinerator at TA-50-37. Any wastes compatible with permitted on-site treatment ~~at the TA-50-1 Batch Waste Treatment Unit~~ will be so treated. The remaining wastes will be transported off site to a permitted disposal facility. If ~~on-site~~ on-site treatment is not possible due to prior closure of the permitted units, ~~off-site~~ off-site disposal will occur.

E.8.5.1 Waste Removal

The waste of concern at the start of closure consist of liquids and residues in the treatment tanks. Following removal of the tank liners and residual wastes, the tanks will be decontaminated. The wash water will be removed, placed in drums, sampled, analyzed and transported off site to a permitted facility for treatment or disposal. All wastes shipped off site will be manifested in accordance with the facility permit. All waste transporters will have an EPA identification number in accordance with ~~HWMR-S~~ HWMR-5, Part IV, Section 263.11.

E.8.5.2 Storage/Treatment Decontamination

Following removal of the two tank liners and residual wastes, the two tanks will be decontaminated by scraping and washing with Liquinox(@) or Alconox(@) in water. The wash water will be removed, placed in drums, sampled, analyzed and transported off site to a permitted facility for treatment or disposal. The ~~tank~~ tanks will be then be scraped and brushed to remove residue and the residue will be collected and placed in drums. The tanks will be removed and the concrete pad on which the two treatment tanks are placed will be washed with a Liquinox(@) or Alconox(@) solution in water. The wash water will be contained with the curbed concrete pad, collected, sampled, and analyzed. If the wash water is not hazardous or requires only neutralization, it will be removed with a vacuum truck and transported to an industrial sewer which drains to the facility industrial wastewater treatment plant at TA-50-1. If the water contains hazardous constituents, it will be removed, placed in drums and transported off site to a permitted facility for treatment or disposal. Wash-down of the two tanks and pad will be repeated until decontamination is demonstrated.

E.8.5.3 Soil Decontamination

Partial closure of this unit will result in the removal of two of the existing four tanks, with the remaining two tanks continuing in service. Therefore, soil sampling, as described in section E.8.9, will be conducted to determine if hazardous wastes have been tracked outside of contaminated areas at the time of final closure of this unit. When final closure is initiated ~~eight~~ eight soil samples will be collected around the edge of the bermed concrete pad beneath the treatment tanks as shown in Figure E.8.2. Each sample will be made up of six inch deep cores taken six inches off the edge and equally spaced to cover each edge. Soil and sediment samples will be analyzed for Table E.8.2 parameters. Analysis and quality assurance/quality control will follow methods defined in SW-846.

If the sample survey indicates that there are no contaminated soil areas, no further soil decontamination action will be taken at the site. If contamination is found in any of these samples, the limits of the sampling area will be expanded by establishing a three foot sampling grid around a single contamination point, or centered on the area defined by the locus of multiple contamination points, to determine the outside perimeter of the contamination. Sampling will be continued until the extent of contamination is determined. Background samples will be taken in the same manner as the initial closure soil survey.

Once the limits of the contaminated area are determined, the contaminated soil will then be removed to a depth of 6 inches and handled as a regulated waste. Contaminated soil will be placed in drums or sealed in dump trucks for off site disposal at a permitted facility. The adequacy of decontamination is determined by additional sampling. Sampling, analysis, and documentation procedures are detailed in section E.8.9. In order to demonstrate final decontamination, soil samples will be analyzed for all Table E.8.2 parameters. Analysis and quality assurance/quality control will follow methods defined in SW-846.

E.8.5.4 Personnel Protection

Personnel who are washing equipment will wear rubber gloves, neoprene acid/solvent resistant coveralls, rubber boots, and a face shield. The Laboratory's Industrial Hygiene and Safety Group ~~(HR-5)~~ (ESH-5) will review the site survey analytical data and recommend additional protective clothing if necessary.

E.8.5.5 Equipment Decontamination

Shovels, drum trucks and other equipment used for decontamination will be scraped and brushed to remove residue, and the residue collected will be placed in drums for disposal off site at a permitted facility. The equipment will be placed on a 30 mil plastic sheet that is bermed to contain liquids and pressure washed with water and detergent. Large equipment such as backhoes and forklifts will also be washed. Testing will be performed on this water to determine if decontamination is adequate. Washing is considered adequate to decontaminate the equipment. The wash water will be allowed to evaporate and the plastic and residue will be packed in drums for off site disposal at a permitted facility.

E.8.6 Decontamination Verification

E.8.6.1. Wash water Decontamination Verification

A minimum of two samples of the clean Liquinox(@) or Alconox(@) solution will be sampled as background for wash water and, along with the wash water samples, analyzed for the constituents listed in Table E.8.2. Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused ~~washwater~~ wash water or background sample. Hazardous

constituents detected in the background sample will invalidate that sample as true background unless adequate explanation of their source is provided.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.8.6.2 Soil Decontamination

The ~~Criteria~~ criteria for determining contaminated soil are the same as discussed in Section E.8.6.1. Regulated constituent concentrations will be compared to background concentrations. Soils containing levels of contamination above the background will be considered contaminated and removed as hazardous waste.

Decontamination of the site soil will be demonstrated by additional sampling. Because removal of contaminated soil will leave an exposed surface, the disturbed surface will be resampled in the same places used to define the contaminated area. Analysis and the determination of contamination is as previously discussed, and reanalysis will be conducted only for those constituents that caused the area to be determined contaminated.

E.8.7 Closure Schedule

The year of closure is 1994. Soil survey, contracting and closure activities will observe the schedule given in Table E.8.1. Some soil sampling and the decontamination contractor selection will be completed before closure begins. Because several of the closure steps will occur simultaneously, closure is estimated to take 210 days.

Contracts for analytical work and, if necessary, soil removal are expected to exceed $100,000. The Laboratory is required by policy to put the work out for bid, and ninety days are required to solicit and process the bids. The location of the site is prone to snow cover in the winter months. The closure may be delayed until the site is free of snow and the ground is thawed adequately to allow the soil sampling and other closure operations. The schedule includes a weather factor to allow for this delay.

E.8.8 Closure Certification

An independent, registered professional engineer and the Permittee shall witness closure of the two tanks and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the two tanks have been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the Secretary of the NMED. One copy shall be maintained at the DOE office and one copy maintained by ~~the ES-8 Regulatory Compliance Section~~ the ESH-19 Hazardous and Solid Waste Group.

E.8.9 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 or other EPA approved procedure may be used if conditions or experience ~~shows~~ show the alternate method to be more appropriate. Disposable samplers may be used.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW-846. Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

E.8.9.1 Soil and Solid Residues Sampling

The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer soil sampler. Drums not capable of being sampled will be assumed to be reactive hazardous waste.

E.8.9.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.8.9.1.2 Sampling procedures ~~trowel or scoop~~

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.
- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.
- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.
- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.
- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.8.9.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure E.8.3., the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

E.8.9.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.8.9.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.
- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the ~~Liquid~~ liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.8.9.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.8.4.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.8.5.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two page record with the original accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.8.6.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and business address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc.);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc.);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc.);

l. Collector's sample identification number(s); and

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be ~~completely~~ completed by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.8.10 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.8.11 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.8.8.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,

2. Sampling location,

3. The datum reported,

4. Detection limit for each datum,

5. A measure of analytical precision (e.g. uncertainty, range, variance),

6. Identification of analytical procedure, and

7. Identification of analytical laboratory.

D. QA/QC statement on the adequacy of the analyses and the decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books,

2. Laboratory sample analysis reports,

3. The QA/QC documentation, and

4. Chain of custody records.

F. Disposal location of all regulated and non-regulated residues.

G. A certification of accuracy of the report.

TABLE E.8.1
CLOSURE SCHEDULE

Activity	Maximum Time Required
Preclosure Activities	
Notify NMED of the closure	-45 days
Conduct first soil sampling survey	-30 days
Analyze first soil samples	-20 days
Conduct second soil survey if needed	-10 days
Analyze second soil set of soil samples	
Closure Activities	
Begin Closure	Day 0
Analyze first soil samples	Day 30
Conduct second soil samples survey, if needed	Day 45
Treat or remove final wastes	Day 50
Analyze second soil samples, if needed	Day 65
Evaporate waste water from treatment tanks	Day 90
Soil decontamination, if necessary	Day 105
Remove soil	Day 130
Dispose of tanks and residue	Day 140
Weather delay contingency	Day 175
Conduct verification samples	Day 200
Analyze samples	Day 200
Submit final report to NMED	Day 210

NOTES: Many of the above steps may be taken concurrently, and the total closure period will not exceed 360 calendar days.

The calendar days given above are completion dates for each activity. In ~~Some~~ some cases more than one activity may occur simultaneously.

This schedule applies to both partial and final closure.

TABLE E.8.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	pH
Cadmium	Acid-extractable semivolatile organics	
Chromium	Base-neutral extractable	
Lead	semivolatile organics	
Mercury		
Selenium		
Silver		
Nickel		
~~Berylium~~ Beryllium		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for Toxic Characteristic Leaching Procedure (TCLP) shall be analyzed by using ~~(TCLP)~~ TCLP procedures. Both data shall be reported in the final report.

TABLE E.8.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Washdown solutions before use	X	X	X
Washdown solutions after use	X	X	X
Soils background	X	X	X
Soil samples	X	X	X
Final decontamination samples	X	X	X

NOTES: Analytical parameters are given in Table E.8.2.

FIGURE E.8.1
TA-54 AREA L WASTE MANAGEMENT UNITS

FIGURE E.8.2
TA-54 AREA L TREATMENT TANKS SAMPLE LOCATIONS

FIGURE E.8.3
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.8.4
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.8.5
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.8.6
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.9	Global	Global	No	Change "coliwasa" to "COLIWASA".	1	A.2
E.9	1 of 16	E.9.	No	Change "four treatment / storage tanks" to ", and two treatment/storage tanks".	1	A.1
E.9	1 of 16	E.9.	No	Change "laboratory" to "Laboratory".	1	A.2
E.9	1 of 16	E.9.2.	Yes[1]	Change "either at Area L or at TA-50 1 Batch Treatment Unit" to "at Area L".	1	A.1
E.9	2 of 16	E.9.3.2.	Yes[1]	Delete "the TA-50 1 Batch Waste Treatment Unit or".	1	A.1
E.9	2 of 16	E.9.4.	No	Change "soilid" to "solid".	1	A.2
E.9	2 of 16	E.9.4.	No	Change "dictating" to "dictated".	1	A.2
E.9	3 of 16	E.9.5.	No	Change "shied" to "shield".	1	A.2
E.9	3 of 16	E.9.5.	No	Change "Industrial Hygiene Group (HSE-5)" to "Industrial Hygiene and Safety Group (ESH-5)".	1	A.1
E.9	3 of 16	E.9.6.	No	Change "to" to "is" before "considered adequate to decontaminate".	1	A.2
E.9	3 of 16	E.9.6.1.	No	Delete duplicate "," after "1989" (two times).	1	A.2
E.9	3 of 16	E.9.6.1.2.	No	Change "washwater" to "wash water".	1	A.2
E.9	3 of 16	E.9.6.1.	No	Change "Director" to "Secretary".	1	A.1
E.9	4 of 16	E.9.8.	No	Change "Director of NMEID" to "Secretary of NMED".	1	A.1
E.9	4 of 16	E.9.8.	No	Change "the HSE-8 Regulatory Compliance Section" to "the ESH-19 Hazardous and Solid Waste Group".	1	A.1
E.9	5 of 16	E.9.9.1.1.	No	Change "E.8.9.1.1" to "E.9.9.1.1".	1	A.2

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.9	5 of 16	E.9.9.1.2.	No	Change "further" to "farther" on the fourth bullet for the Veihmeyer sampler.	1	A.2
E.9	6 of 16	E.9.9.2.	No	Change "E.8.3" to "E.9.2".	1	A.2
E.9	6 of 16	E.9.9.2.1.	No	Change "E.9.8.2.1" to "E.9.9.2.1".	1	A.2
E.9	7 of 16	E.9.9.2.2.	No	Change "Liquid" to "liquid" in the sixth bullet.	1	A.2
E.9	7 of 16	E.9.9.3.	No	Change "E.8.4" to "E.9.3".	1	A.2
E.9	8 of 16	E.9.9.3.	No	Add "." after "etc" (three times).		
E.9	8 of 16	E.9.9.3.	No	Change "completely " to "completed".	1	A.2
E.9	9 of 16	E.9.11.	No	Change "Director" to "Secretary".	1	A.1
E.9	10 of 16	Table E.9.1	No	Change "EID" to "NMED" (two times).	1	A.1
E.9	10 of 16	Table E.9.1	No	Change "proposalsl" to "proposals".	1	A.2
E.9	11 of 16	Table E.9.2	No	Change "Chloronated" to "Chlorinated".	1	A.2
E.9	11 of 16	Table E.9.2	No	Change "Berylium " to "Beryllium".	1	A.2
E.9	11 of 16	Table E.9.2	Yes[2]	Change "Extraction Procedure Toxicity" to "the toxicity characteristic".	1	B.1.a
E.9	11 of 16	Table E.9.2	Yes[2]	Change "Extraction Procedure Toxicity procedures" to "the Toxicity Characteristic Leaching Procedure".	1	B.1.a

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
E.9	13 of 16	Figure E.9.1	No	Update Figure E.9.1 to include new location of Modular units plus new Modular units.	1	A.1

[1] The Batch Waste Treatment Unit (BWTU) was closed pursuant to 20 NMAC 4.1, Pt. V, 264 Subpart G, in 1994. This change in the text was made to show that the BWTU is not longer a permitted unit.

[2] This change is being made because the Toxicity Characteristic Leaching Procedure (EPA SW-846, Method 1311) has replaced the EP-Toxicity procedure.

CLOSURE PLAN
PERMIT ATTACHMENT E.9
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.9
NM 0890010515-1

E.9 CLOSURE FOR TA-54 AREA L SOLIDIFIED HAZARDOUS WASTE STORAGE UNIT

The storage unit is a specified area within the fenced portion of Technical Area 54, Area L, used for storage of solidified packaged waste. (Figure E.9.1.) Approximately 60 percent of the area within the perimeter fence is designated for solidified waste storage. Solid contained wastes are stored on pallets, or otherwise elevated four inches, in cleared areas within the fenced portions of Area L. This closure plan applies only to this area.

Other storage units at Area L consist of a single story metal building, a roofed concrete containment structure, two transportable storage units, ~~and two~~ ~~four~~ ~~treatment / storage~~ ~~treatment/storage~~ tanks. These units are used for the accumulation, packaging, and storage of waste containers, which are generated throughout the ~~laboratory~~ Laboratory and delivered to Area L routinely. Liquid wastes are segregated into compatible types and placed inside the transportable storage units , the metal building or within one of the six storage cells of the concrete containment structure. Wastes suitable for recycling are consolidated into drums, and any damaged or leaking drums are repackaged into larger drums in this area. Four tanks are located at Area L. They are used to neutralize, oxidize, and evaporate waste. The tanks are located on a bermed concrete pad.

E.9.1 Estimate of Maximum Waste in Storage and Treatment

No more than 3,600 55-gallon containers of solidified wastes will be stored within the fenced area at Area L.

E.9.2 Description of Waste Handled

A wide variety of wastes generated throughout the Laboratory are brought to Area L, including wastes from basic and applied chemistry R & D programs (small quantities of different acids, bases, organics, inorganics and reactive metals), processing wastes (sludge resulting from treatment ~~either~~ at Area L ~~or at TA-50-1 Batch Treatment Unit~~), and chemically contaminated equipment, to be stored, recycled, treated or packed for off site disposal at a permitted facility.

E.9.3 Closure Procedures

E.9.3.1 Partial Closure

Partial closure would be the change in use of a portion of the designated area from solidified storage to another use such as a new building. Should this occur, all portions of this plan shall apply to the closing area.

E.9.3.2 Closure Procedure

Cleanup and closure will be done in sequential order, culminating in the disposal of any residues or contaminated material by shipment off site to a permitted facility. Before decontamination, all wastes in storage will either be treated on site or disposed of off site. Given the diversity of wastes handled, it is not possible to estimate the exact wastes on hand at the initiation of closure and, therefore, the final disposition of the wastes. In general, recyclable wastes will be reused internally or recycled to users off site. Permitted wastes will be burned at the permitted incinerator at TA-50-37. Any wastes compatible with permitted treatment at ~~the TA-50-1 Batch Waste Treatment Unit or~~ the TA-54, Area L treatment tanks will be so treated. The remaining wastes will be transported off site to a permitted disposal facility. If on site treatment is not possible due to prior closure of the permitted units, off site disposal will occur.

E.9.3.3 Waste Removal

The waste on site at the start of closure will be only packaged solidified wastes. Contained wastes will be handled with hand trucks or forklifts. Trucks of adequate size will be used to move contained wastes to off site treatment or disposal facilities. All wastes shipped off site will be manifested in accordance with the facility permit. All waste transporters will have an EPA identification number in accordance with HWMR-5, amended 1989, Part IV, section 263.11.

E.9.4 Soil Decontamination

Soil sampling, as described in E.9.9, will be conducted to determine if hazardous wastes have been tracked outside of containment areas. A sampling survey of the entire contained ~~soilid~~ solid waste storage area within the TA-54, Area L fence will be conducted using a grid with 10 foot centers to determine the area of possible contamination. The survey will be performed by collecting a sample from the surface to six inches below ground surface at each grid point. Additional samples will be collected from areas with visible contamination (i.e., soil discoloration). If the initial surface grid sample analysis indicates contamination, additional sampling at the same points at one foot depth will be performed to determine the depth of contamination. If contamination is determined on the surface, additional sampling will be conducted by reducing the grid distance by one-half and taking additional surface samples, ~~dictating~~ dictated by terrain, until the contaminated area is defined. If contamination is found at the outside grid samples, the limits of the grid will be expanded to determine the outside perimeter of contamination, to include areas outside of the perimeter fence and at the discharge point of the run off ditch. The contaminated soil will then be removed and handled as a regulated waste. The adequacy of decontamination is determined by additional sampling. Sampling, analysis, and documentation procedures are detailed in section E.9.9.

Soil and sediment samples will be analyzed for all HWMR-5, amended 1989, Part V, Appendix IX constituents. Analysis and quality assurance/quality control will follow methods defined in SW-846. The approach to soil decontamination depends on the extent of contamination determined by the sampling. If the sample survey indicates that there are no contaminated soil areas, no further soil decontamination action will be taken at the site. If the soil is contaminated, it will be placed in drums or sealed in dump trucks for off site disposal at a permitted facility.

E.9.5 Personnel Protection

Personnel who are washing equipment will wear rubber gloves, neoprene acid/solvent resistant coveralls, rubber boots, and a face ~~shied~~ shield. The Laboratory's Industrial Hygiene and Safety Group ~~(HSE-5)~~ (ESH-5) will review the site survey analytical data and recommend additional protective clothing if necessary.

E.9.6 Equipment Decontamination

Shovels, drum trucks and other equipment used for decontamination will be scraped and brushed to remove residue, and the residue collected will be placed in drums for disposal off site at a permitted facility. The equipment will be placed on a plastic sheet that is bermed to contain liquids and washed with water and detergent. Large equipment such as backhoes and forklifts will also be washed. Testing will be performed on this water to determine if decontamination is adequate. Washing ~~to~~ is considered adequate to decontaminate the equipment. The wash water will be allowed to evaporate in the permitted evaporation tanks and the plastic and residue will be packed in drums for off site disposal at a permitted facility.

E.9.6.1 Decontamination Verification

Samples of soil and decontamination wash water will be analyzed for the constituents in HWMR-5, amended 1989,~~,~~ Part V, Section 264, Appendix IX. Soils containing levels of contamination above the background will be considered contaminated and removed as hazardous waste.

Decontamination of the site soil will be demonstrated by additional sampling. Because removal of contaminated soil will leave an exposed surface, the disturbed surface will be resampled in the same places used to define the contaminated area. Analysis and the determination of contamination is as previously discussed, and reanalysis will be conducted only for those constituents that caused the area to be determined contaminated.

A minimum of two samples of the clean Liquinox(@) or Alconox(@) solution will be sampled as background for wash water and, along with the wash water samples, analyzed for the constituents listed in HWMR-5, amended 1989,~~,~~ Part V, Section 264, Appendix IX.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or

2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused ~~washwater~~ wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The ~~Director~~ Secretary will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.9.7 Closure Schedule

The year of closure is 2100. Soil survey, contracting and closure activities will observe the schedule given in Table E.9.1.

Soil sampling and the decontamination contractor selection may be completed before closure begins. Closure is estimated to take 340 days.

Contracts for analytical work and, if necessary, soil removal are expected to exceed $100,000. The Laboratory is required by policy to put the work out for bid, and ninety days are required to solicit and process the bids. The location of the site is prone to snow cover in the winter months. The closure may be delayed until the site is free of snow and the ground is thawed adequately to allow the soil sampling and other closure operations. The schedule includes a weather factor to allow for this delay.

E.9.8 Closure Certification

An independent registered professional engineer and the owner/operator of the facility shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed accordingly. The letter shall be dated and signed by each party and stamped by the registered engineer, and the original copy shall be submitted by the DOE to the ~~Director of the NMEID~~ Secretary of NMED. One copy shall be maintained at the DOE offices and one copy maintained by ~~the HSE-8 Regulatory Compliance Section~~ the ESH-19 Hazardous and Solid Waste Group.

E.9.9 Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 or other EPA approved procedure may be used if conditions or experience shows the alternate method to be more appropriate. Disposable samplers may be used.

Containers appropriate for the analyses requested will be used. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW-846.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

E.9.9.1 Soil Sampling

The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler.

~~E.8.9.1.1~~ E.9.9.1.1 Cleaning of sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. Prevention of cross contamination is of particular importance in these samples.

E.9.9.1.2 Sampling procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube ~~further~~ farther than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.9.9.2 Liquid Sampling

A ~~coliwasa~~ COLIWASA sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the ~~coliwasa~~ COLIWASA is shown in Figure ~~E.8.3.~~ E.9.2., the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the ~~coliwasa~~ COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross contamination.

~~E.9.8.2.1~~ E.9.9.2.1 Cleaning of sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the ~~coliwasa~~ COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber reinforced paper towels, the ~~coliwasa~~ COLIWASA tube may be quickly cleaned. Improper cleaning of sample equipment will cause cross contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.9.9.2.2 Sampling procedures

- Assemble the ~~coliwasa~~ COLIWASA sampler.

- Make sure that the ~~coliwasa~~ COLIWASA sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the ~~coliwasa~~ COLIWASA sampler into the liquid at a rate that permits the levels of the ~~Liquid~~ ~~liquid~~ inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.9.9.3 Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure ~~E.8.4.~~ E.9.3.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The "field information" in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.9.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two page record with the original accompanying shipment and the "copy" retained by the Laboratory. An example of this form is shown in Figure E.9.5.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries include:

a. Purpose of sample (routine sampling, special sampling);

b. Location of sampling (coordinates referenced to staked field points, if soil sample);

c. Name and business address of person making log entry;

d. Type of process producing waste;

e. Number and volume of sample;

f. Description of each sampling location, sampling methodology, equipment used, etc.;

g. Date and time of sample collection;

h. Sample destination and transporter's name (name of laboratory, UPS, etc.);

i. Map or photograph of the sampling site, if any;

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc.);

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc.);

l. Collector's sample identification number(s);

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be ~~completely~~ completed by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.9.10 Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared

in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

E.9.11 Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the ~~Director~~ Secretary. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.9.8.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:

1. Sample identification,
2. Sampling location,
3. The datum reported,
4. Detection limit for each datum,
5. A measure of analytical precision (e.g. uncertainty, range, variance),
6. Identification of analytical procedure, and
7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination demonstration.

E. The location of the file of supporting documentation:

1. Field log books,
2. Laboratory sample analysis reports,
3. The QA/QC documentation, and
4. Chain of custody records.

F. Disposal location of all regulated and non-regulated residues.

G. A certification of accuracy of the report.

TABLE E.9.1
CLOSURE SCHEDULE

Activity	Maximum Time Required
Preclosure Activities	
Notify the ~~EID~~ NMED of closure	-90 days
Advertise contract request for proposals	-90 days
Receive ~~proposalsl~~ proposals sampling survey	-20 days
Award contract	-10 days
Closure Activities	
Begin Closure	Day 0
Analyze first soil samples	Day 60
Conduct second soil samples survey, if needed	Day 90
Treat or remove final wastes	Day 90
Analyze second soil samples, if needed	Day 120
Contract for soil decontamination	Day 210
Remove soil	Day 240
Conduct verification samples	Day 270
Analyze samples	Day 310
Submit final report to ~~EID~~ NMED	Day 340

NOTES: The calendar days above are completion dates for each activity. In some cases more than one activity may be taken concurrently.

This schedule applies to both partial and final closure.

TABLE E.9.2.
ANALYTICAL PARAMETERS

Metals	Organics	Other
Arsenic	Halogenated volatile organics	Cyanides
Barium	Nonhalogenated volatile organics	pH
Cadmium	Acid-extractable semivolatile organics	
Chromium	Base-neutral extractable semivolatile organics	
Lead	Organochlorine pesticides	
Mercury	~~Chloronated~~ Chlorinated herbicides	
Selenium	Phenols	
Silver		
Nickel		
~~Berylium~~ Beryllium		

NOTES: Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW-846, and may be superseded by more current methods from SW-846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for ~~Extraction Procedure Toxicity~~ the toxicity characteristic shall be analyzed by ~~Extraction Procedure Toxicity procedures~~ the Toxicity Characteristic Leaching Procedure. Both data shall be reported in the final report.

TABLE E.9.3
SAMPLING SUMMARY

Material Sampled	Metals	Organics	Other
Washdown solutions before use	X	X	X
Washdown solutions after use	X	X	X
Soils background	X	X	X
Soil samples	X	X	X
Final decontamination samples	a	a	a

NOTES: Analytical parameters are given in Table E.9.2.

[a]Parameters given in HWMR-5, Part V, Section 264, Appendix IX

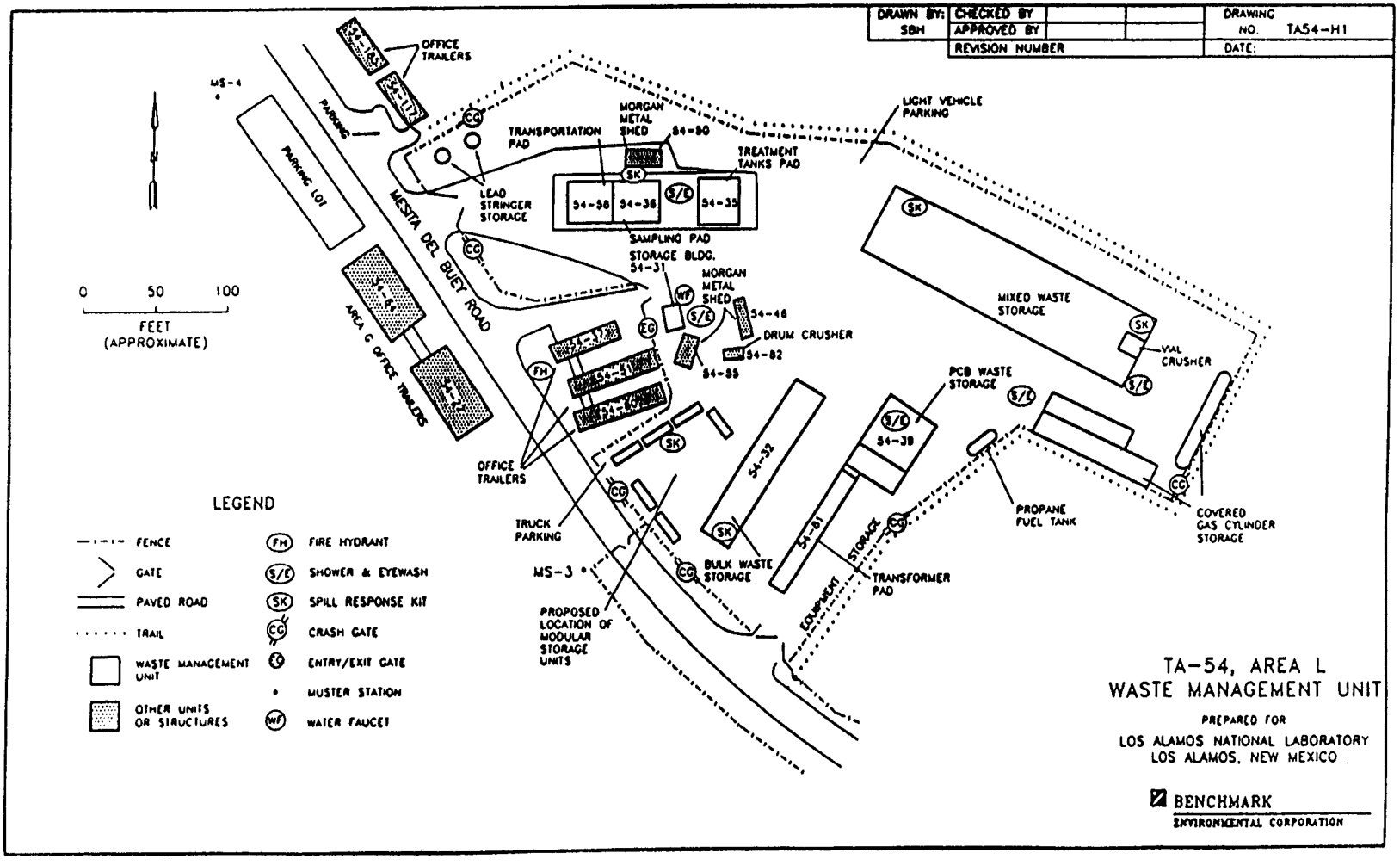

FIGURE E.9.1
TA-54 AREA L WASTE MANAGEMENT UNITS

FIGURE E.9.2
COMPOSITE LIQUID WASTE SAMPLER (COLIWASA)

FIGURE E.9.3
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No._____
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

_____

_____

FIGURE E.9.4
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No._____

Place of Collection_____

_____

Date Sampled_____ Time Sampled _____

Field Information_____

_____

_____

FIGURE E.9.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No.____

Location of Sampling: ☐ Producer ☐ Hauler ☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1. _____ _____ _____
Signature Title Inclusive Dates

2. _____ _____ _____
Signature Title Inclusive Dates

3. _____ _____ _____
Signature Title Inclusive Dates

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
F	Global	Global	No	Change "labpack" to "lab pack" and "labpacks" to "lab packs".	1	A.2
F	1 of 4	F.1.1.	Yes[1]	Change "a Chemical Waste Disposal Request Form 10-3A" with "Form 1541 to request waste disposal".	1	B.3
F	1 of 4	F.1.1.	No	Change "Waste Management Group (HSE-7)" to "Chemical and Mixed Waste Management Group (CST-5)".	1	A.1
F	1 of 4	F.1.1.	Yes[2]	Change "The Chemical Waste Disposal Request Form is reviewed" to "CST-5 personnel review the waste disposal request".	1	B.3
F	1 of 4	F.1.1.	Yes[2]	Change "It is then used by HSE-7 personnel as the shipping form when the waste is collected" to "CST-5 personnel then use the waste disposal request to complete the shipping papers for waste collection".	1	B.3
F	1 of 4	F.1.1.	Yes[2]	Change "HSE-7 personnel then" to "Also, CST-5 personnel use the waste disposal request to create a second record as part of the Hazardous Waste Database. CST-5 personnel".	1	B.3
F	1 of 4	F.1.1.	No	Change "for transport" to "and transport it".	1	A.2
F	1 of 4	F.1.1.	No	Insert "-" between "DOT" and "approved".	1	A.2
F	1 of 4	F.1.1.	No	Change "(referred to as labpacks)" to "(this packaging configuration is commonly referred to as a lab pack)".	1	A.2
F	1 of 4	F.1.1.	No	Change "comcobs" to "corncobs".	1	A.2
F	2 of 4	F.1.2.	Yes[1]	Change "Chemical Waste Disposal Request form" to "waste disposal request".	1	B.3
F	2 of 4	F.1.2.	Yes[3]	Insert "- DOT Hazard Class and shipping information, as appropriate".	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determination Required	Summary of Proposed Change	Modification Class	Class Citation
F	2 of 4	F.1.2.	Yes[2]	This paragraph is being rewritten to change "Chemical Waste Disposal Request form" to "waste disposal request" and update data analyst responsibilities.	1	B.3
F	2 of 4	F.2.1.1.	No	Change "contain" to "containing".	1	A.2
F	2 of 4	F.2.1.1.	No	Change "contain" to "containing".	1	A.2
F	3 of 4	F.2.2.	No	Change sentence beginning with "Generally" to active voice for clarity.	1	A.2
F	4 of 4	F.2.2.	No	Change "offsite" to "off-site" (two times).	1	A.2

[1] LANL is reducing its internal paperwork burden and developing waste disposal forms that accommodate multiple waste types. Because this effort may result in changes to the form's title, LANL proposes to replace references to the *Chemical Waste Disposal Request* with *waste disposal request* to reduce the need for future permit modifications. This modification also updates the form number.

[2] LANL is reducing its internal paperwork burden and developing waste disposal forms that accommodate multiple waste types. Because this effort will result in changes to the form's title, LANL is replacing the references to the *Chemical Waste Disposal Request* with *waste disposal request* to reduce the need for future permit modifications. Also, LANL no longer uses the *Chemical Waste Disposal Request* (CWDR) as the shipping form when waste is collected. Chemical and Mixed Waste Management Group (CST-5, previously part of HSE-7) personnel use the information on the CWDR to complete shipping papers and create drum tracking records. CST-5 data analysts then maintain the CWDR, shipping papers, and drum tracking records in the project files.

[3] LANL is proposing a modification to Module II, Section M. "Movement Restriction," that formally requires on-site shipments of hazardous waste to comply with U.S. Department of Transportation (DOT) regulations. If NMED approves the modification to Module II, Section M, then DOT information would be required on the container labels. LANL is including the DOT information in Section F.1.2 contingent on NMED's approval of the Module II, Section M modification.

CONTAINER MANAGEMENT
PERMIT ATTACHMENT F
NM0890010515-1

ATTACHMENT F
CONTAINER MANAGEMENT

F.1 CONTAINER PACKAGING, SAMPLING and LABELING

F.1.1 Container Packaging and Transport

When chemical substances are declared to be in excess, the originating group completes Form 1541 to request waste disposal ~~a Chemical Waste Disposal Request Form 10-3A)~~ and sends the form to the ~~Waste Management Group (HSE-7)~~ Chemical and Mixed Waste Management Group (CST-5). The request lists the chemical waste the generating group needs to dispose of, the quantity and physical form of the wastes, and other pertinent information such as the condition of the containers. Material Safety Data Sheets (MSDS's) and existing analytical data may also be available. The containers described will range from two ounce bottles of unusable chemical to 330-gallon Tuff-Tanks of plating material.

~~The Chemical Waste Disposal Request form is reviewed for adequacy of information and assignation of segregation codes, DOT information, and EPA codes. It is then used by HSE-7 personnel as the shipping form when the waste is collected. HSE-7 personnel then visit the generating site to package the waste for transport to TA-54, Area L. All waste is transferred in accordance with the Laboratory's On-Site Transportation Manual.~~

CST-5 personnel review the waste disposal request for adequacy of information and assignation of segregation codes, DOT information, and EPA codes. CST-5 personnel then use the waste disposal request to complete the shipping papers for waste collection. Also, CST-5 use the waste disposal request to create a second record as part of the Hazardous Waste Database. CST-5 personnel visit the generating site to package the waste and transport it to TA-54, Area L. All waste is transferred in accordance with DOT regulations and Laboratory procedures.

Small containers of waste (< 5 gallon size), will be overpacked in either a DOT-approved cardboard box or plastic or metal drum with absorbent material (this packaging configuration is commonly referred to as a lab packs). Vermiculite will be the most commonly used absorbent; however, the organic waste is compatible with absorbents such as ~~comcobs~~ corncobs and sawdust. These absorbents may be used for this category of waste since in cases of contamination of the absorbent incinerators prefer to receive a more combustible material than vermiculite. Containers that will be composited at TA-54, Area L will be sorted and packaged separately from those that will remain in ~~labpacks~~ lab packs for storage.

Drums and Tuff-Tanks will be visually inspected for integrity before transport. If the drum is unacceptable it will be repackaged or overpacked prior to transport. The wastes are transported on a half-ton to twelve-ton truck.

Upon arrival at TA-54, Area L, the wastes are unloaded from the transport vehicle. ~~Labpack~~ Lab pack waste will be temporary placed at the packaging building for labeling or compositing. Drums and Tuff-Tanks will be placed on either the sampling pad or storage pad for sampling and labeling.

F.1.2 Drum Labeling, Recording, and Sampling System

Each unique package of waste, meaning ~~labpack~~ lab pack or drum, is labeled with the following information:

- chemical group number
- unique record number
- date of generation (if this information is not already on the container, the date from the ~~Chemical Waste Disposal Request form~~ waste disposal request is used)
- either an EPA hazardous waste label or the words "hazardous waste."
- DOT Hazard class and shipping information, as appropriate

~~This information and the Chemical Disposal Request Form is provided to the resident data analyst. This individual creates a second record as part of the Hazardous Waste Database. All records are then maintained by the data analyst in accordance with the requirements of this permit.~~

This information and the waste disposal request is provided to the resident data analyst, who maintains all records in accordance with the requirements of this permit.

Sampling of the waste is then performed as outlined in Permit Attachment A. The sampling pad is restricted to one family of chemicals at a time, for example organics. The group allowed at the time will be posted on the pad. This ensures that incompatible chemicals do not react in the containment basin of the pad. Before a new family of chemicals is placed on the pad, the containment area will be cleaned. For this reason, the main sampling pad will generally be used for organic waste and acid/base waste will be sampled at the appropriate storage cell.

After all packages are labeled and/or sampled, they are moved to one of the Laboratory's storage areas. The permitted areas are defined in Permit Module III.

F.2 STORAGE AREA PRACTICES

F.2.1 Specific Storage Areas

The Laboratory has five groups of storage areas: two modular storage units and the main storage pad at TA-54, Area L, the modular storage units and two storage pads at TA-50, and the storage room at the incinerator. The usage of each of these units is discussed below.

F.2.1.1 Modular Storage Units, TA-54, Area L (TA-54-68 and -69)

The primary usage of the modular units will be for the storage of lab pack waste, particularly those in fiberboard containers. After labeling, the lab packs are placed directly in the appropriate storage cell. Each modular unit has three cells allowing a maximum of six chemical family groups to be stored at any

one time. However, multiple cells may be used for the same chemical family, such as two cells ~~contain~~ containing organic waste. Each cell will be labeled as to the chemical family stored there. If at any time the cell designation changes, such as from organic to reactive, the cell will first be cleaned to ensure that no organic residues remain that would create an incompatibility problem during a spill.

F.2.1.2 Storage Pad at TA-54, Area L (TA-54-32)

Material stored on the storage pad at TA-54, Area L, will generally be placed there after labeling and sampling. This may not be the case for acids and bases where the storage cell is also used as the sampling pad. The pad is divided into six cells allowing the storage of six families of chemicals. However, more than one cell may be used for the same chemical type. All cells will be labeled as to which chemical type is stored there. If at any time it is necessary to change the designation of a cell, it will first be cleaned to remove any residues that might produce an unfavorable reaction with the new chemical type.

F.2.1.3 Modular Storage Units at TA-50 (TA-50-114, -137, and -138)

The modular storage units at TA-50 will be used primarily to store acid and base wastes that will be treated at the Batch Waste Treatment Unit. Each cell will be labeled acid or base to indicate the type of waste stored there. If at any time the designation of a cell needs to be changed, the cell will first be cleaned to ensure that ~~incompatibility~~ incompatible residues have been removed. All waste stored here will have been labeled and sampled at TA-54, Area L.

F.2.1.4 Storage Pads at TA-50 (TA-50-139 and -140)

Two large storage pads will be located at TA-50. Each pad will have six divisions capable of storing six types of chemicals. Multiple cells may be used for the same chemical type. Each cell will be labeled to indicate the type of chemical stored there. If a cell designation needs to be changed, the cell will first be cleaned to remove any residues that might result in an incompatibility problem. All waste stored at this location will have been labeled and sampled at TA-54, Area L.

F.2.1.5 Storage Room at TA-50-37, Room 117

The storage room at TA-50-37 is divided into two areas, one for solids and one for liquids. The liquid side is further divided into two cells. Therefore, up to three chemical types may be stored at any one time. Cells will be labeled as to the chemical type stored there. If at any time the cell designation needs to be changed, the cell will be cleaned to remove any incompatible residues. Generally, only waste that is already approved for on-site incineration will be stored there. This means the waste has not only been sampled and labeled but also analyzed per Permit Attachment A. However, if the need should arise, the area will be used for compatible waste for which analytical results are pending. All labeling and sampling will have occurred at TA-54, Area L. The primary chemical type stored here will be organic waste. If small quantities of other waste types, such as oxidizers, are to be incinerated, it will generally be delivered the day of the burn to avoid storage in this room.

F.2.2 General Container Management Practices

All recyclable materials are stored as hazardous waste until such time as they are recycled. They are placed in the same segregated storage areas as the other waste.

Any bulging drums are handled in accordance with accepted practice and Laboratory procedures. Generally this means that personnel will follow such practices as slowly venting the drum as it is being opened and personnel wearing protective clothing and splash guards. ~~will be followed.~~

Any spills resulting from the transfer/storage of waste will be cleaned up in accordance with Attachment D.

Inspection will be conducted in accordance with Attachment B.

~~Offsite~~ Off-site shipments of waste will occur at either the given storage area directly or from the transport pad at TA-54, Area L. This will avoid unnecessary transport on Pajarito Road.

Repackaging of waste will generally occur adjacent to the storage area the waste was removed from. Repackaging can range from overpacking a leaking container to ~~offsite~~ off-site contractors repackaging the ~~labpack~~ lab pack waste to meet incinerator specifications.

Permit Module III provides additional requirements such as required aisle space for all storage in container areas.

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
G	N/A	N/A	No	No class I modifications proposed.	N/A	N/A

AUTHORIZED WASTES

PERMIT ATTACHMENT G
NM0890010515-1

NO CLASS 1 MODIFICATIONS PROPOSED

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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BATCH WASTE TREATMENT UNIT OPERATION

PERMIT ATTACHMENT H
NM0890010515-1

UNIT CLOSED

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

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LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
I	Global	Global	No	Change "EID" to "NMED".	1	A.1
I	3 of 6	7.	No	Change "twentyone" to "twenty-one".	1	A.2
I	4 of 6	8.	No	Change "twentyfour" to "twenty-four".	1	A.2
I	4 of 6	9.	No	Change "twentyseven" to "twenty-seven".	1	A.2
I	5 of 6	11.	No	Change "thirtythree" to "thirty-three".	1	A.2
I	5 of 6	12.	No	Change "thirtysix" to "thirty-six".	1	A.2
I	6 of 6	13.	No	Change "thirtynine" to "thirty-nine".	1	A.2

ADDITIONAL DATA SUBMITTAL SCHEDULE
PERMIT ATTACHMENT I
NM0890010515-1

ADDITIONAL DATA SUBMITTAL SCHEDULE
PERMIT ATTACHMENT I
NM0890010515-1

As used in this attachment, "investigate" means, within the restraints of personnel safety, to visually observe and trace from the point of origin or generation to the point of discharge, accumulation or treatment, a waste stream. Investigate further includes documentation of analyses accomplished to ascertain the chemical nature of the waste in accordance with HWMR-5, as amended 1989, Part III, 40 CFR section 262.11.

1. Within three months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 0, 1, 2, and 4, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

2. Within six months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 5, 6, 7, and 8, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

3. Within nine months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 3, 9, 10, and 11, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

4. Within twelve months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 12, 13, 14, and 15, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

5. Within fifteen months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 16, 18, 19, and 20, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

6. Within eighteen months of the effective date of this permit, the Permittee shall:

a. For each building and site in Technical Areas 21, 22, 26, and 28, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

7. Within ~~twentyone~~ twenty-one months of the effective date of this permit, the Permittee shall:

a. For each building and site in Technical Areas 29, 30, 31, and 32, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be

separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

8. Within ~~twentyfour~~ twenty-four months of the effective date of this permit, the Permittee shall:

   a. For each building and site in Technical Areas 33, 35, 36, and 37, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

9. Within ~~twentyseven~~ twenty-seven months of the effective date of this permit, the Permittee shall submit to the ~~EID~~ NMED:

   a. For each building and site in Technical Areas 39, 40, 41, and 43, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

   b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

   c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

10. Within thirty months of the effective date of this permit, the Permittee shall:

a. For each building and site in Technical Areas 44, 46, 47, and 48, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

11. Within ~~thirtythree~~ thirty-three months of the effective date of this permit, the Permittee shall submit to the ~~EID~~ NMED:

a. For each building and site in Technical Areas 49, 50, 51, and 52, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11 if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

12. Within ~~thirtysix~~ thirty-six months of the effective date of this permit, the Permittee shall:

a. For each building and site in Technical Areas 53, 54, 55, and 56, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of

process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

13. Within ~~thirtynine~~ thirty-nine months of the effective date of this permit, the Permittee shall submit to the ~~EID~~ NMED:

a. For each building and site in Technical Areas 57, 58, 59, and all other sites not identified above, investigate and compile a listing of every solid waste stream, as characterized in HWMR-5, Part II, 40 CFR section 261.2.

b. For each waste stream, determine, in accordance with HWMR-5, Part III, 40 CFR section 262.11, if each waste stream is a hazardous waste. Specific tests conducted in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(1), shall be identified and documented. All testing shall be by EPA-approved methods. Knowledge of process determinations made in accordance with HWMR-5, Part III, 40 CFR section 262.11(c)(2) shall be fully documented.

c. The requested information shall be compiled by technical area and building or outside test site and submitted to the ~~EID~~ NMED. Each source within the technical area shall be separately identified. Waste streams excluded in accordance with HWMR-5, Part III, 40 CFR section 262.11(a), shall be identified and fully documented as to the basis of the exclusion.

PROPOSED CLASS 1 MODIFICATIONS TO THE LOS ALAMOS NATIONAL LABORATORY RCRA OPERATING PERMIT

DO NOT CITE OR COPY

LANL RCRA Permit Modification Sheet

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
J	1 of 8	J.1.2.1.	No	Change "model" to "mode".	1	A.2
J	1 of 8	J.1.2.1.	No	Change "an" to "and".	1	A.2
J	1 of 8	J.1.3.1.	No	Change "nd" to "and".	1	A.2
J	2 of 8	J.1.3.3.	No	Change ":" to ";" after "pumps and sprays".	1	A.2
J	2 of 8	J.1.3.4.	No	Change "Section Leader for Technical Support" to "Group Leader for CST-16".	1	A.1
J	3 of 8	J.1.5.2.	No	Change "NMEID" to "NMED".	1	A.1
J	3 of 8	J.1.5.2.	No	Change "an" to "and".	1	A.2
J	4 of 8	J.1.7.	No	Change "Health and Safety" to "Environment, Safety, and Health".	1	A.1
J	4 of 8	J.2.1.	No	Change "retensioned" to "pretensioned".	1	A.2
J	5 of 8	J.2.5.	No	Change "which" to "that" after "automatic switchgear".	1	A.2
J	5 of 8	J.2.6.1.	No	Change "an" to "and".	1	A.2
J	5 of 8	J.2.6.1.	No	Insert "the" before "pit in Room 112".	1	A.2
J	6 of 8	J.2.6.2.	No	Change "liquidblend/feed" to "liquid blend/feed".	1	A.2
J	7 of 8	J.3.1.	No	Change "HSE" to "CST".	1	A.1
J	7 of 8	J.3.3.	No	Change "Technical Support Section" to "Thermal Destruction and Science Technology Group".	1	A.1
J	7 of 8	J.3.4.	No	Change "HSE-7" to "ESH-5" (two times).	1	A.1
J	7 of 8	J.3.4.	No	Change "HSE-3, Industrial Safety" to "ESH-5, Industrial Hygiene and Safety".	1	A.1
J	8 of 8	J.3.5.2.	No	Change "Health and Safety" to "Environment, Safety, and Health".	1	A.1

LANL RCRA Permit Modification Sheet (Continued)

Module or Attachment	Page	Section	Class Determi-nation Required	Summary of Proposed Change	Modification Class	Class Citation
J	8 of 8	J.3.5.2.	No	Change "The Technical Support Section" to "CST-16".	1	A.1
J	8 of 8	J.3.5.2.	No	Change "HSE" to "ESH".	1	A.1
J	8 of 8	J.3.5.3.	No	Change "Facilities Engineering (ENG-5)" to "Operations and Maintenance Support (FSS-9)".	1	A.1
J	8 of 8	J.3.5.3.	No	Change "Radiation Safety (HSE-1)" to "Health Physics Operations (ESH-1)".	1	A.1
J	8 of 8	J.3.5.3.	No	Change "Industrial Safety (HSE-3), and Industrial Hygiene (HSE-5)" to "and Industrial Hygiene and Safety (ESH-5)".	1	A.1

INCINERATOR OPERATIONAL SAFETY
PERMIT ATTACHMENT J
NM0890010515-1

INCINERATOR OPERATIONAL SYSTEM

J.1 LIMITING CONDITIONS FOR PROCESS OPERATION

J.1.1 Objective

To ensure safety and protection of the environment the CAI process operations will be conducted within the limits herein, and the following equipment, as appropriate to the activities, must be operating or available before process operations can be conducted.

J.1.2 Process Feed Operations

J.1.2.1 Plant Utilities

Electrical service (normal and auxiliary generator in 10-second standby ~~model~~ mode); compressed air (designed and standby compressors); and building fire protection systems (the main water supply is integral to the supply for the wet- ~~an~~ and dry-pipe fire sprinkler systems) must be available. Prior to operations in the liquid feed preparation area, the special HALON[R] fire protection system must be available. The process area HEPA filtered ventilation system must be operating.

J.1.2.2 Plant Instrumentation

Prior to liquid waste operations, a survey of the ambient air in the Liquid Feed Preparation Room must be made, and instruments for measuring combustibles and oxygen concentrations must be at hand during preparation of volatile liquids.

J.1.2.3 Personnel

At least two persons must be on hand during any feed preparation operations.

J.1.3 Low-Temperature Check-Out Operations for the CAI

At low temperatures (below 500°F) the following are required:

J.1.3.1 Equipment

In addition to the minimum equipment requirements listed in J.1.2 above, low temperature operations for instrumentation and equipment checkout ~~nd~~ and calibration require the following:

J.1.3.2 Utilities

Liquid (diesel oil) and/or fuel gas (natural gas) supply systems; auxiliary cooling water system; uninterruptable power supply (UPS); and instrument air supply (designated and standby compressors).

J.1.3.3 Equipment in the CAI

Quench column pumps and sprays~~;~~; incinerator induced draft (ID blower or automatic crossover to the HEPA filter plenum in building exhaust); process off-gas HEPA filter banks.

J.1.3.4 Instrumentation

All instrumentation and control panels must be on and operating. Prior approval of the ~~Section Leader for Technical Support~~ Group Leader for CST-16 must be obtained to disable any safety interlock. If any interlocks are disabled, the front of the instrument chassis must be tagged and the interlock identified. An appropriate entry must be made in the Operations Log Book when any interlock is disabled or restored to operational condition.

J.1.3.5 Personnel

At least two persons must be present during operation of the incinerator. These are a shift supervisor and an additional process engineer.

J.1.4 High-Temperature Operations for the CAI

During incinerator startup for operation at temperatures above 500°F, and in addition to the items listed in J.1.3, the following must be fully functional:

J.1.4.1 Utilities

Auxiliary generator and automatic switchgear (running and ready); primary, secondary, and cooling tower loops and pumps; cooling tower blower(s) (depending on the outside and process scrub system temperatures); and the process steam generator with the preignition interlock satisfied.

J.1.4.2 Equipment in the CAI

Venturi scrubber system; packed-column scrubber system; process liquid filter and recirculation system; off-gas superheater; and induced draft (ID) blower.

J.1.4.3 Instrumentation

All of the process controls and interlocks listed in the Second Edition of the Final Safety Analysis Report must be operable. No interlocks shall be disabled.

J.1.4.4 Personnel

Personnel requirements are the same as for low temperature operations.

J.1.5 Waste Feed Operations

In addition to the above, the following are required for waste feed operations:

J.1.5.1 Utilities

Waste feed will be terminated if the primary electrical supply system is lost. The loss of the primary water supply system initiates a controlled shutdown of the incinerator.

J.1.5.2 Equipment

During incinerator waste feed operations, all equipment specified in the previous sections must be fully operational. Waste feed operations shall cease until any discrepancies are corrected.

The ~~NMEID~~ NMED permit for incineration of RCRA-listed ~~an~~ and characteristic wastes specifies minimum operating temperatures, minimum percent oxygen in the secondary chamber, maximum carbon monoxide levels in the off-gas, maximum feed rates, and other parameters for hazardous waste feed operations. These parameters are detailed in Permit Module V for RCRA waste.

J.1.6 Process Off-gas Treatment

The following are required for off-gas treatment:

J.1.6.1 Equipment

Gas stream exit temperature from the quench column not greater than 350°F; gas stream exit temperature from the packed-column scrubber not greater than 180°F; gas stream inlet temperature to the process HEPA filters not greater than 250°F; scrubber solution temperature not greater than 180°F.

J.1.6.2 Personnel

In addition to the shift supervisor and process engineer, operations personnel shall be assigned to each shift as required to meet programmatic goals of the incinerator run plan.

J.1.7 Basis

Basis for limiting conditions for process operations is the 1979 AL/OSD Facility and Process Operational Safety Review and subsequent approval of the Operational Safety Requirements, the Technical Development Facility (TDF) Quality Assurance Manual (which includes requirements for reviews by the TDF experiment safety committee and design committee), and Administrative Requirement 1-8 of the Los Alamos ~~Health and Safety~~ Environment, Safety, and Health Manual, Chapter 1.

J.2 DESIGN FEATURES

J.2.1 Construction

Except for the office addition, the TDF is constructed of precast, prestressed, ~~retensioned~~ pretensioned concrete double-"Tee" sections. The exterior walls are load bearing and are interior insulated. All sections contain weldments to provide connection of the reinforcing steel between adjacent panels, floors and roof decks. The interior load bearing walls are of filled concrete block construction. Non-load bearing walls are of metal stud and gypsumboard construction. The building shell is designed to remain as a confinement structure in all but a beyond design basis accident (BDBA).

Building design loads used were in accordance with ANSI Standard A58.1; 1972, and the Uniform Building Code for Earthquake Zone 2, 100 mph wind with a 100 year mean recurrence interval, Exposure B, and roof loads determined for 30 psf snow in addition to the ANSI Standard dead loads.

J.2.2 Fire Protection

The facility is designed for one hour Fire Code resistance with wet pipe sprinklers in all heated areas, except for the chemical storage area and the liquid feed preparation area. Antifreeze and dry pipe systems are installed in unheated areas to meet or exceed DOEM 0552 minimum requirements for "Improved Risk" level of protection.

The CAI process area exhaust duct to the facility main HEPA filter plenum contains a dry pipe water spray cooldown system upstream of the plenum. The plenum contains a mist eliminator/fire screen upstream of the filter banks. The main HEPA filter plenum has a dry pipe sprinkler system and the Bay 2 exhaust HEPA filter plenum contains an antifreeze sprinkler system. The chemical storage area contains a deluge fire sprinkler system and the liquid feed preparation area contains a HALON^{R} 1301 fire protection system.

J.2.3 Ventilation System

Three levels of containment with appropriate ventilation are provided. The four resulting zones are separated from each other by physical barriers and/or pressure gradients. All air exhausted from the process areas of the facility and the waste storage/staging bay is not less than double HEPA filtered before release from the facility stack. The ventilation supply and exhaust blowers are interlocked with the fire alarm system. A fire alarm initiates shutdown of these blowers to reduce the amount of oxygen available to a fire. Likewise, the liquid feed preparation area inlet

air supply louvers and the ventilation exhaust blowers are interlocked with the fire alarm and the HALON[R] system to isolate the room before the fire extinguishing medium is discharged.

J.2.4 Liquid Effluents

Except for the sanitary sewer system, all liquid effluents from the facility and the process are collected in sumps and are transferred through the double-contained and monitored radioactive waste line to the Industrial Waste Treatment Facility.

J.2.5 Utilities

The TDF has a diesel powered auxiliary generator and automatic switchgear which, when on standby mode, will supply electrical power to critical equipment, as well as communications and lighting to critical areas, within 10 seconds of a power failure. In the running and ready mode used during all incinerator operations, the transfer time is less than one second. A battery powered Uninterruptable Power Supply (UPS) system provides power to the instrumentation and controls if the auxiliary generator and line power are both lost.

Designated and backup air compressors, powered from both the line and auxiliary sources provide instrument air to the pneumatic process devices. These compressors are backed up by compressed gas (nitrogen) bottles.

J.2.6 Process

The CAI has a number of engineered safeguards:

J.2.6.1 Fire Protection Systems

In addition to the facility wet pipe, antifreeze filled, deluge, ~~an~~ and dry pipe sprinkler systems, the process has several engineered fire protection systems: The liquid feed preparation room has a HALON[R] 1301 fire protection system, also initiated by UV detectors, temperature sensors, or manual pull station. The air supply louvers and exhaust blowers are interlocked with the alarm system to isolate the room prior to the HALON[R] release.

The chemical storage area deluge sprinkler system is provided with a Fire Department connection for the addition of foam fire suppressant from a tanker truck.

The blowers supplying and exhausting air from the CAI process area and the waste storage/staging area are shut down upon the initiation of a fire alarm, to limit the oxygen available to a fire.

The floor drains in the CAI process and support areas and the sump in the radioactive waste storage area are connected to the facility sump tank in the pit in Room 112. This tank discharges to the double contained and instrumented industrial waste water pipe line to the treatment plant at TA-50, Building 1. Fire water from the CAI process and

support area sprinkler systems is collected by the floor drains. The radioactive waste storage area fire water is collected in a floor sump and is pumped to the facility sump tank. This floor sump is provided with an overflow drain to one of the chemical storage area sumps in the event that sprinkler flow in this room exceeds the pump capacity. Fire sprinkler water in Bay 2 and the main HEPA filter plenum system flows through floor drains and directly into the industrial waste line to the treatment plant.

There are no floor drains in the bermed liquid feed preparation area. The chemical storage area is provided with sumps of sufficient volume to contain the entire contents of the storage area containers and not less than thirty minutes of the deluge sprinkler system flow.

J.2.6.2 Liquid Blend/Feed System

Except for the transferring of liquids from the shipping containers to the waste feed tanks (which requires hands-on operations), ~~liquidblend/feed~~ liquid blend/feed station operations are performed from the control panel outside the liquid feed enclosure. Selected controls and instrument readouts are also located at the incinerator main control panel and the liquid burner station at the incinerator.

J.2.6.3 Incinerator Controls and Interlocks

Incinerator startup and operation are automatically controlled and the systems are interlocked to prevent unsafe operation. Three shutdown modes (controlled, fast and scram), with automatic and/or manual initiation, are provided to ensure safe shutdown of the process. Both visible and audible alarms are provided for fault indication.

J.2.6.3.1 Pre-Ignition Interlocks

Incinerator startup is prevented if faults are detected in the incinerator negative pressure, burner fuel supplies, and off-gas cleaning and cooling systems.

J.2.6.3.2 Startup Controls

A sequential timer controls air purge, pilot ignition, burner ignition, and flame failure shutdown.

J.2.6.3.3 Temperature Controllers

After startup, the incinerator is brought to temperature manually or automatically by a single station microprocessor-based controller. In the run mode, incinerator temperatures are maintained at set levels by temperature controllers.

J.2.6.3.4 Waste Feed Interruption and Cut-Off Interlocks

During operation, certain fault conditions require that liquid and solid waste feed be interrupted. In the case of solid waste feed, the loading cycle timer is disabled and the ram feeder is placed into standby mode. Liquid waste feed is instantaneously interrupted by closing of a solenoid shutoff valve on the liquid waste feed line.

J.2.6.3.5 Shutdown Controls

The detection of certain faults in the process equipment controls and interlocks will initiate one of three logic sequences (controlled, fast, or scram) provided to shut down the process in a safe and orderly manner, as dictated by the nature and potential consequences of the fault.

J.3 ADMINISTRATIVE CONTROLS

J.3.1 Responsibilities

Ultimate safety of the TDF operations lies with the ~~HSE~~ CST Division Leader, who appoints personnel to be responsible for the daily operation of the facility. These responsibilities include oversight of all engineering functions associated with maintenance and modifications of the building and with operating, maintaining, and modifying the CAI process.

J.3.2 Training

Training requirements for personnel assigned to the incinerator operations are delineated in Permit Attachment C.

J.3.3 Other Controls

The ~~Technical Support Section~~ Thermal Destruction and Science Technology Group maintains an emergency plan that is reviewed annually and updated as changes occur. Each employee assigned to the TDF has a copy of the emergency plan.

J.3.4 Internal Safety Review System

~~HSE-7~~ ESH-5 maintains a safety committee and appoints a safety officer to oversee safety functions of the group. The safety committee performs routine safety inspections of all ~~HSE-7~~ ESH-5 facilities. A representative of ~~HSE-3~~ ~~Industrial Safety~~ ESH-5 Industrial Hygiene and Safety, is an ad hoc member.

J.3.5 Documentation of Operating Procedures

J.3.5.1 Operating Manual

An Operating Manual for the CAI process is maintained at the TDF. This manual is reviewed and updated as required. Each person assigned to TDF operations receives a copy of the manual. Manual contents are as follows:

1. Technical Support Section Organization
2. Operational Safety Requirements (OSRs)
3. Standard Operating Procedures (SOPs)
4. The TDF Emergency Plan
5. Facility Description
6. Facility Operating Instructions (OIs)
7. Process Description
8. Process Operating Instructions (OIs)
9. Utility Operating Instructions (OIs)

J.3.5.2 Standard Operating Procedures

Standard Operating Procedures (SOPs) are in effect for operations in the TDF, as specified in Administrative Requirement 1-3 of the Los Alamos ~~Health and Safety~~ Environment, Safety, and Health Manual. ~~The Technical Support Section~~ CST-16 reviews all SOPs at least annually and submits updates and revisions to the ~~HSE~~ ESH Division SOP Committee for review and approval.

J.3.5.3 Special Work Permits

A Special Work Permit (SWP) must be obtained prior to conducting potentially hazardous activities not covered by an SOP. The building manager reviews and approves SWPs. The appropriate disciplines in ~~Facilities Engineering (ENG-5)~~ Operations and Maintenance Support (FSS-9), ~~Radiation Safety (HSE-1)~~ Health Physics Operations (ESH-1), ~~Industrial Safety (HSE-3),~~ and Industrial Hygiene and Safety ~~(HSE-5)~~ (ESH-5) also review the SWPs.

J.3.5.4 Operating Instructions

Operating Instructions (OIs) are the detailed process equipment operating procedures and check lists required to safely start, operate, and shut down the CAI process, utilities, and other mechanical equipment. Members of the section's engineering staff write the OIs, which are then submitted for peer review within the section. The OIs are revised as operational requirements dictate.