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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 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) 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

b) LOS ALAMOS CANYON
   1 monitoring well near LAC-3
   1 monitoring well near LAC-4.5
   1 monitoring well near LAC-5

c) SANDIA CANYON
   1 monitoring well near PM-1
   1 monitoring well near PM-3

d) MORTENDAD 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. 1 mile west of State Road 4
   1 monitoring well appr. 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 Appendix IX constituents, Gross Gamma, Gross Alpha, Total U, ^{3}H, ^{137}Cs, ^{239}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);

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 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 Appendix IX constituents, while the radiochemical analysis shall include ^{3}H, ^{137}Cs, Total U, ^{238}Pu, ^{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. <u>QA/QC Evaluation</u>

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. <u>Identification and Summary of Previous Studies</u>

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. <u>CORRECTIVE ACTION FOR CONTINUING RELEASES</u>

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 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 F 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 v. 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 (Task II) will be incorporated into the Installation Workplan as appropriate, and not repeated in the OU

Workplans. 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 fis al year. The draft LANL installation RI/FS workplan 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, 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. Notwithstanding 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. <u>REPORTING REQUIREMENTS</u>

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 (1) 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 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.

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 (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 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 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) <u>RFI Work Plan (LANL Installation RFI Work Plan)</u>

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 C., 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 justifi-

cation 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 Plans- 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 within 1 year of the effective date of the permit, 10% of those SWMUs listed in Table A. This Workplan 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 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 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 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 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 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 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 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 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

Technical Area 0

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-c)
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)
3-002 (b-c)
3-003 (a-c)
3-009 (a-h)

Technical Area 3 Cont.

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)

Technical Area 6

6-001 (a-b)
6-002
6-003 (a) (19)
6-003 (c-h)
6-005
6-006
6-007 (a-g)

(1 6 1)

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
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

203.57486.16

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-c)
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 SHMTs*

SHMT No.
0-005
1-001 (a-n)
1-002
1-003 (a)
2-005
2-008 (a)
3-010 (a)
3-012 (a-b)
3-013 (a)
3-015
3-020 (a)
3-029 (a)
5-005 (a)
6-007 (a)
8-003 (a-c)
8-007
9-008 (a-b)
9-009
9-013
10-003 (a-f)
10-006
11-004 (a-e)
11-005 (a-b)
11-006 (a)
13-004
15-002
15-006 (a-d)
15-007 (a-d)
15-008 (a-d)
15-009 (a-b)
15-012 (a-g)
16-001 (b-e)
16-005 (n-o)
16-006 (a)
16-006 (c-f)
16-007
16-008 (b)
16-016
16-018

SHMT No.
16-019
16-020
16-021 (a)
18-001 (a)
18-003 (a-h)
21-006 (a-e)
21-010 (a-h)
21-011 (a-l)
21-012 (a)
21-014
21-015
21-016 (a)
21-017 (a-c)
21-018 (a-b)
22-015 (c)
33-002 (a-c)
33-017
35-003 (a-q)
35-006
35-010 (a-d)
36-003 (a-c)
39-001 (a-b)
41-001
46-002
46-006 (a-d)
46-007
49-001 (a)
50-006 (a)
50-006 (c-d)
50-009

54-004 (except Shaft No. 9)
54-005
54-015 (h)
60-005 (a)
73-001 (a)

181 SWMUs

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

Table C

* 20 additional SWMUs were added after workplan review

RFI Work Plan due July 7, 1994:

Technical Area 16

16-005 (a-f)
16-005 (h)
16-005 (j-m)
16-006 (g-i)
16-015 (a,b)
16-017
16-024 (e)
16-025 (a)
16-025 (b-b2)
16-025 (c-c2)
16-025 (d-f)
16-025 (g-g2)
16-025 (h-z)
16-026 (i2)
16-026 (m-q)
16-026 (s)
16-026 (w)
16-028 (a)
16-029 (a2-h2)
16-029 (k-z)
16-031 (c-d)
16-031 (g)
16-032 (a)
16-032 (c-e)
16-034 (a-g)
16-034 (l-p)
C-16-025
C-16-026

*Total SWMUs = 101

RFI Work Plan due July 7, 1995:

Technical Area 16

16-016 (d-e)
16-016 (g)
16-025 (a2)
16-025 (d2)
16-025 (e2)
16-025 (f2)
16-025 (h2)
16-026 (a-a2)
16-026 (b2)
16-026 (c2)
16-026 (d2)
16-026 (e2)
16-026 (f-f2)
16-026 (g-g2)
16-026 (h-j)
16-026 (k-k2)
16-026 (l)
16-026 (r)
16-026 (t-u)
16-026 (x-z)
16-028 (b-e)
16-029 (h-j)
16-030 (a-c)
16-030 (e-f)
16-031 (a-b)
16-031 (e-f)
16-031 (h)
16-034 (h-k)

Total SWMUs = 51

Total SWMUs = [illegible]

RFI Work Plan due
May 11, 1995

Table D

Staggered Schedule for Group 3 RFI Workplans

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 [illegible] Work Plan and Report [illegible] and Preparation

After the Permittee submits the [illegible] Plan, the Administrative Authority will approve [illegible] the plan. If the Administrative Authority [illegible] the plan, the Permittee shall immediately initiate [illegible] of the [illegible] Approved [illegible] are [illegible]

[illegible] part of the plan [illegible] Administrative Authority [illegible] in writing. The Permittee [illegible] Administrative Authority [illegible] time [illegible] request for [illegible] The [illegible] Administrative Authority [illegible] Permittee take [illegible] Permittee [illegible] written [illegible] days of [illegible] Authority.

[illegible] Administrative [illegible] If the [illegible] plan [illegible] Permittee shall [illegible] approved [illegible]

[illegible]

[illegible]

[illegible]

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 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. <u>RFI Work Plan, Canyon Systems</u>

The Permittee shall submit one or more Task/Site Workplans 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

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

[illegible]

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 [illegible] 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 [illegible] a due date for submittal of a Revised Final Report [illegible] days after notification.

Based on preliminary [illegible] CMS Report, the Administrative [illegible] to evaluate additional remedies [illegible] one or more proposed remedies.

[illegible]

[illegible] determines that [illegible] compliance [illegible] to the [illegible] of this [illegible] Administrative [illegible] initiates a [illegible] one will:

a. Notify the Permittee [illegible] of the proposed [illegible] in the [illegible]

[illegible]

[illegible]

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.

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	[illegible] after release discovery
Monthly Management Reports	[illegible] later than [illegible] calendar days after effective date of permit
Task I Preliminary Report Description of Current Conditions Installation Workplan	[illegible] hundred eighty [illegible] calendar days from effective date of permit
SWMU Assessment Plan for newly identified SWMU	[illegible] calendar [illegible] after [illegible] request
[illegible]	[illegible]
SWMU Assessment Report	[illegible] calendar [illegible] after completion of implementation of SWMU Assessment Plan
[illegible]	[illegible] hundred eighty [illegible] calendar days after the effective date of the permit
[illegible]	[illegible]

	Installation RFI Workplan
RFI Preliminary Report	according to schedule in RFI Workplan

Facility Submission Requirements Cont.	Due Date
Revised RFI Workplan	as determined by Administrative Authority usually within 30 days of receipt of NCD
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 measures required after permit issuance	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

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 EXISTING CONDITIONS

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 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;

[illegible] All potential migration pathways [illegible] information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and

[illegible] The potential impacts on human health and the environment, including demography, groundwater and surface-water use, and land use.

[illegible]

A summary of past and present permits required, received, and or denied for all environmental media and enforcement actions related with them. This must include [illegible] and Federal permits.

[illegible]

[illegible] measures [illegible] than those [illegible]

[illegible] objectives [illegible] the measure is [illegible]

[illegible]

[illegible]

[illegible]

TASK II. RFI WORKPLAN REQUIREMENTS

[illegible] shall prepare [illegible] investigation [illegible] This RFI workplan [illegible] development of [illegible] during the [illegible] increase [illegible]

facility specific situation. The RFI Workplan 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;

[illegible]

[illegible]

[illegible]

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;

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 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 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 performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI. The Task specific Workplan must document any deviations from the Installation Workplan.

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 [illegible]

1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic [illegible] program shall provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic [illegible] affecting groundwater flow beneath the facility.

b. An analysis of [illegible] features that might [illegible]

[illegible]

c. Based on field data [illegible] gamma and neutron logging [illegible] borings and [illegible] classification and [illegible] which may be part of the [illegible] the [illegible] unsaturated [illegible]

d. Based on field [illegible] structural geology [illegible] 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 in consolidated 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 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;

[illegible]

[illegible]

[illegible]

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 Characterization

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

[illegible] Permittee shall conduct [illegible] investigation to characterize any plumes of [illegible] the facility. This investigation shall at a [illegible] the following information:

a. A description of the [illegible] extent of [illegible] from the facility;

b. The [illegible] and [illegible] contamination [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] Permittee shall [illegible] taking the [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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 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, 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

INVESTIGATIVE ANALYSIS

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 Standards, Federally-approved state water quality standards, Groundwater protection standards).

TASK V: REPORTS

A. Preliminary and Workplan

The Permittee shall submit to the Administrative Authority the Preliminary Report (Task I) and the RFI Workplan (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

[illegible]

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 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	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

TASK VII. IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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. Those tasks, and the ER Program documents/activities that are equivalent to the CMS documents/activities are [illegible]ated on the following page. The permittee shall prepare a sing[illegible]e 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.

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 technolpgies. The Permittee shall document the reasons for excluding technologies, identified in Task I, as supplemented in the development of the alternative.

TASK VIII: 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

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) and the total time required to achieve a given level of response:

i) Constructibility 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.

[illegible] has two components that shall be [illegible] implement a [illegible] actually see beneficial results. Beneficial results are defined as the reduction of contaminant to some acceptable [illegible].

[illegible] Permittee shall [illegible] corrective measure alternative with [illegible] evaluation shall [illegible] communities and environment [illegible] working during implementation. Factors [illegible] include fire, explosion, and exposure to hazardous substances.

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 [illegible] an evaluation [illegible] adverse effect of [illegible] effects [illegible] [illegible] adverse impact.

Human Health

[illegible]

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.

[illegible]

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 (1) 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 RECOMMENDATION 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

[illegible]

[illegible]

[illegible]

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

[illegible] Community relations [illegible]

[illegible] Estimates and [illegible]

a. Capital cost estimate

b. Operation and maintenance [illegible] and

c. Project [illegible] operation

[illegible]

[illegible] quarter

[illegible]

[illegible]