(19)

HSWA PERMIT

EFFECTIVE DATE MAY 23, 1990

NEW REQUIREMENTS
EFECTIVE DATE MAY 19, 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733
April 19, 1994

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. Jerry Bellows
Los Alamos Area Manager
Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico 87544

RE: Transmittal of Hazardous Waste Permit for
Los Alamos National Laboratory [NM0890010515]

Dear Mr. Bellows:

Enclosed is a copy of your permit to operate a hazardous waste facility, under the Hazardous and Solid Waste Amendments of 1984 (HSWA) as modified following a Class III permit modification. Also enclosed is EPA's response comments and the changes in the draft permit.

For clarity and convenience, we have revised Module VIII of your permit (issued March 8, 1990) to incorporate new language as a result of this modification. The effective date for Module VIII remains May 23, 1990. The requirements of this modification shall become effective thirty (30) days after the date of this transmittal letter.

Procedures for requesting the EPA Administrator to review permit decisions are detailed at 40 CFR Part 124.19. Effective March 1, 1992, jurisdiction over petitions for review was changed from the Administrator to the Environmental Appeals Board. If you petition the Environmental Appeals Board for such a review, please send a copy of your petition to the Region 6 office.

The filing for appeals should be sent to the address listed below:

U.S. Environmental Protection Agency
Office of the Administrator
401 M Street SW
Room 1145 (West Tower)
Washington, D.C. 20460

If you have any questions, please contact Mr. Dave Neleigh of my staff at (214) 655-6785.

Sincerely yours,

Allyn M. Davis

Allyn M. Davis, Director
Hazardous Waste Management Division (6H)

Enclosures

cc: Ms. Kathleen M. Sisneros, Director
New Mexico Environment Department

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

TABLE OF CONTENTS

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.

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.

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 LA0-3
   1 monitoring well near LA0-4.5
   1 monitoring well near LA0-5

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

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

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 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

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

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. 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

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

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

Table A

Technical Area 0

SWMU Number

0-001
0-003
0-005
0-011 (a)
0-011 (c-e) (20)
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

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)
3-002 (a-d)

(181)

Technical Area 3 Cont.

3-003 (a-c)
3-009 (a-j)
3-010 (a)
3-011
3-012 (a-b)
3-013 (a)
3-014 (a-u)
3-015 (116)
3-018
3-019
3-020 (a)
3-021
3-024
3-025 (a-b)
3-026 (b-d)
3-028
3-029
3-031
3-032
3-033
3-034 (a-b)
3-035 (a-b)
3-036 (a)
3-036 (c-d)
3-037
3-038 (a-b)
3-039 (a)
3-043 (c)
3-043 (e)
3-044 (a)
3-045 (a-i)
3-046
3-049 (a-e)
3-050 (a)
3-050 (d-g)
3-052 (a)
3-052 (c)
3-052 (e-f)
3-054 (a-e)
3-055 (a)
3-055 (c-d)
3-056 (a)
3-056 (c-d)
3-056 (l-n)
3-059

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)

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)

Technical Area 16 Cont.

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

(194)

Technical Area 36

36-001
36-002
36-003 (a-c) (7)
36-005
36-006

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

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)

(144)

Table B - Priority SWMUs*

SWMU 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
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-i)
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 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

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. RFI Work Plan, Canyon Systems

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 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 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

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.

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)(1)(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

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	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
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 for SWMU(s)	one hundred eighty (180) calendar days after the effective date of the permit
Task/Site Workplans	as specified in Installation RFI Workplan
RFI Preliminary Report	according to schedule in RFI Workplan

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 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;

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 REQUIREMENTS

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

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;

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 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 characterize the following:

1. Hydrogeology

The Permittee shall conduct a program to evaluate

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;

e. Porosity;

f. Cation exchange capacity (CEC);

g. Soil 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

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 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.

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 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

pursuant to 40 CFR 124.10(c) (1)(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 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

Scope of ..IS	ER Program Equivalent	
The Corrective Measures Study consists of four tasks:	LANL Installation RI/FS Work Plan	Feasibility Study
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	VI.	VI. Identification and Development of the Remedial Action Alternative or Alternatives A. Description of Current Situation B. Establishment of Remedial Action Objectives C. Bench-Scale and Pilot Studies D. Screening of Remedial Technologies E. Identification of the Remedial Alternative or Alternatives
Task VII: Evaluation of the Corrective Measure Alternative(s) A. Technical/Environmental/Human Health/Institutional B. Cost Estimate	VII.	VII. Evaluation of the Remedial 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	VIII.	VIII. Justification and Recommendation of the Remedial Measure or Measures A. Technical B. Human Health C. Environmental
Task IX: Reports A. Progress B. Draft C. Final	IX. Reports A. LANL Installation RI/FS Work Plan B. Annual Update of LANL Installation RI/FS Work Plan C. Draft and Final	IX. Reports A. LANL Task/Site RI/FS Documents and LANL Monthly Management B. Draft C. Final

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

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

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

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 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.

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.