

VII. MODULE VII - CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

VII.A. DEFINITIONS

For purposes of this Module, the following definitions shall apply:

"Action Levels" mean ecological and human health-based levels of constituent concentrations determined by the Secretary to be environmental media-specific and constituent-specific concentrations that would most likely be protective of human health and the environment. The calculation of action levels is specified in the RFI guidance document referenced in Permit Condition [VII.M.2.d.i.](#)

"Administrator" means the Administrator of the U.S. Environmental Protection Agency, or designee.

"Area of Concern" (AOC) means any discernable unit or area which, in the opinion of the Secretary, may have received solid or hazardous waste or waste containing hazardous constituents at any time. The Secretary may require investigation of the AOC to determine if it is a SWMU. If shown to be a SWMU by the investigation, the AOC shall be reported by the Permittees as a newly-identified SWMU. If the AOC is shown not to be a SWMU by the investigation, the Secretary may determine that no further action is necessary and notify the Permittees in writing.

"CFR" means the Code of Federal Regulations.

"CMS" means Corrective Measures Study.

"Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water so that such hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground water.

"EPA" means the United States Environmental Protection Agency.

"HWA" means the New Mexico Hazardous Waste Act.

"HSWA" means the 1984 Hazardous and Solid Waste Amendments to RCRA.

"Hazardous constituent" means any constituent identified in 20.4.1.200 NMAC (incorporating 40 CFR §261 Appendix VIII), any constituent identified in 20.4.1.500 NMAC (incorporating 40 CFR §264 Appendix IX), any constituent identified in a hazardous waste listed in 20.4.1.200 NMAC (incorporating 40 CFR §261

Subpart D), or any constituent identified in a toxicity characteristic waste in 20.4.1.200 NMAC (incorporating 40 CFR §261.24, Table 1).

"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 notably 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.

"NMAC" means the New Mexico Administrative Code.

"RCRA" means the Resource Conservation and Recovery Act of 1980 as amended by HSWA in 1984.

"RFA" means RCRA Facility Assessment.

"RFI" means RCRA Facility Investigation.

"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" means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste.

"Solid Waste Management Unit" (SWMU) 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 a facility at which solid wastes have been routinely and systematically released. The definition includes regulated units (i.e., landfills, surface impoundments, waste piles and land treatment units) but does not include passive leakage or one-time spills from production areas and units in which wastes have not been managed (e.g., product storage areas).

If, subsequent to the issuance of this Permit, regulations are promulgated which redefine any of the above terms, the Secretary may, at its discretion, apply the new definition to this Permit by modifying the Permit in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.41).

VII.B. STANDARD MODULE CONDITIONS

VII.B.1. Waste Minimization

Annually, by December 1, for the previous year ending September 30, the Permittees shall enter into the operating record as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.73(b)(9)), a statement certified according to 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)) specifying that the Permittees have a program in place to reduce the volume and toxicity of hazardous wastes generated by the facility's operation to the degree determined by the Permittees to be economically practicable; and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittees which minimizes the present and future threat to human health and the environment. A current description of the program shall be maintained in the operating record and a copy of the annual certified statement shall be submitted to the Secretary. The following are suggested criteria for the program:

- VII.B.1.a. Any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the facility;
- VII.B.1.b. Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities;
- VII.B.1.c. Any source reduction and/or recycling measures implemented in the last five (5) years or planned for the near future;
- VII.B.1.d. 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;
- VII.B.1.e. Factors that have prevented implementation of source reduction and/or recycling;
- VII.B.1.f. Sources of information on source reduction and/or recycling received at the facility (e.g., local government, trade associations, suppliers, etc.);
- VII.B.1.g. An investigation of additional waste minimization efforts which could be implemented

at the facility. This investigation would analyze the potential for reducing the quantity and toxicity of each waste stream through production reformulation, recycling, and all other appropriate means. The analysis would include an assessment of the technical feasibility, cost, and potential waste reduction for each option;

- VII.B.1.h. A flow chart or matrix detailing all hazardous wastes it produces by quantity, type, and building or area;
- VII.B.1.i. A demonstration of the need to use those processes which produce a particular hazardous waste due to a lack of alternative processes or available technology that would produce less hazardous waste;
- VII.B.1.j. A description of the waste minimization methodology employed for each related process at the facility which shows whether source reduction or recycling is being employed; and
- VII.B.1.k. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.

VII.B.2. Dust Suppression

Pursuant to 20.4.1.700 NMAC (incorporating 40 CFR §266.23(b)), and the Toxic Substances Control Act, the Permittees shall not use waste or used oil or any other material which is contaminated with dioxin, polychlorinated biphenyls (PCBs), or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment.

VII.B.3. Permit Modification

VII.B.3.a. Secretary Initiated Modifications

If at any time for any of the reasons specified in Section 74-4-4.2.D of the HWA and 20.4.1.900 NMAC (incorporating 40 CFR §270.41) the Secretary determines that modification of this Permit is necessary, the Secretary may initiate Permit modification proceedings in accordance with Permit Condition I.B.1.

VII.B.3.b. Permittee Initiated Modifications

The Permittees may, where appropriate, initiate Permit modifications in accordance with Permit Condition I.B.1.

VII.B.3.c. Modification of Corrective Action Schedules of Compliance (CASC)

- (i) The Permittees shall adhere to the CASC(s) contained in the Permit. If at any time the Permittees determine that such schedules cannot be met, the Permittees shall notify the Secretary and, if appropriate, submit a request for a Permit modification under 20.4.1.900 NMAC (incorporating 40 CFR §270.42), with a justification as to why the current CASC cannot be met.
- (ii) If the Secretary determines that a modification of the CASC is required, the following procedure shall apply, in compliance with 20.4.1.900 and .901 NMAC (incorporating 40 CFR §270.41). CASC Modifications made under this procedure are not subject to administrative appeal.
 - (a) The Secretary shall notify the Permittees in writing of the proposed modification. Such notice shall:
 - i) Describe the exact changes to be made to the Permit Conditions;
 - ii) Provide an explanation of why the modification is needed; and
 - iii) Provide notification of the date by which comments on the proposed modification must be received;
 - iv) Provide notification that supporting documentation or data is available for inspection at the State office specified in Permit Condition [VII.B.5](#); and
 - v) Include the name and address of the Secretary's representative(s) to whom comments may be sent.

(b) The Secretary shall:

- i) Publish a notice of the proposed modification in a newspaper of general circulation and newspapers in the area affected, which includes notice of items in Permit Condition [VII.B.3.c.ii.\(a\)](#);
- ii) Mail a notice of the proposed modification to all persons on the facility mailing list as specified in 20.4.1.1103 NMAC (referencing 40 CFR §124.10(c)(1)). Such notice shall include items under Permit Condition [VII.B.3.c.ii.\(a\)](#), and shall be mailed concurrently with the notice to the Permittees; and
- iii) For facilities which have established an information repository pursuant to Permit Condition [VII.D.1](#), the Secretary shall place a notification of the proposed modification, including items under Permit Condition [VII.B.3.c.ii.\(a\)](#), in the information repository concurrently with actions taken under those items.

VII.B.3.d. Secretary's Decision Regarding Modification

The Secretary shall make a final decision regarding the proposed permit modification in accordance with 20.4.1.901 NMAC.

VII.B.4. Specific Waste Ban

VII.B.4.a. Except as exempted by Section 9(a)(1) in the WIPP Land Withdrawal Act (**LWA**), P.L. 102-579 as amended by P.L. 104-201, the Permittees shall not place in any land disposal unit the wastes specified in 20.4.1.800 NMAC (incorporating 40 CFR §268) after the effective date of the prohibition unless the Administrator has established disposal or treatment standards for the hazardous waste and the Permittees meet such standards and other applicable conditions of this Permit.

VII.B.4.b. The Permittees may store wastes restricted under 20.4.1.800 NMAC (incorporating 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 20.4.1.800 NMAC (incorporating 40 CFR §268.50(a)(2)) including, but not limited to, clearly marking each tank or container.

VII.B.4.c. The Permittees shall comply with all waste analysis requirements of 20.4.1.800 NMAC (incorporating 40 CFR §268.7) as amended, and as required in Module II. Changes to the waste analysis plan will be considered Permit modifications at the request of the Permittees, pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42).

VII.B.4.d. Except as exempted by Section 9(a)(1) in the WIPP LWA, the Permittees shall determine whether any hazardous waste generated at the facility is restricted from land disposal and complete the notifications to the disposal facility where the waste will be shipped in accordance with 20.4.1.800 NMAC (incorporating 40 CFR §268.7). Results shall be maintained in the operating record.

VII.B.4.e. Except as exempted by Section 9(a)(1) in the WIPP LWA, the Permittees shall comply with requirements restricting placement of hazardous wastes in or on the land which become effective by statute or promulgated under 20.4.1.800 NMAC (incorporating 40 CFR §268), regardless of requirements in the Permit. Failure to comply with the regulations may subject the Permittees to enforcement action under Section 3008 of RCRA.

VII.B.5. Information Submittal

The Permittees shall ensure that all plans, reports, notifications, and other submissions to the Secretary required in this Module are signed and certified in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.11). A summary of the planned reporting requirements pursuant to this Module is found in Table 1 (page [58](#)). Two (2) copies and one (1) 3.5" IBM compatible disk copy each of these plans, reports, notifications or other submissions shall be submitted to the Secretary by Certified Mail or hand delivered as specified in Permit Condition I.G.

VII.B.6. Plans and Schedules Incorporation Into Permit

VII.B.6.a. All plans and schedules required by this Module are, upon approval by the Secretary, incorporated into this Permit by reference and become an enforceable part of this Permit. Since required items are essential elements of this Permit, failure to submit any of the required items or submission of inadequate or insufficient information may subject the Permittees to enforcement action under Section 74-4-10 of the HWA or Section 3008 of RCRA which may include fines, suspension, or revocation of the Permit.

VII.B.6.b. Any noncompliance with approved plans and schedules shall be termed noncompliance with this Permit. Written requests for extensions of due dates for submittals may be granted by the Secretary in accordance with Permit Condition [VII.B.3](#).

VII.B.6.c. If the Secretary determines that actions beyond those provided for, or changes to what is stated herein, are warranted, the Secretary may modify this Permit as specified in Permit Condition [VII.B.3](#).

VII.B.7. Data Retention

All raw data, including but not limited to, laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Module shall be maintained at the facility during the term of this Permit, including any reissued Permits.

VII.B.8. Management of Wastes

All solid wastes which are managed pursuant to a remedial measure taken under the corrective action process or as an interim measure addressing a release or the threat of a release from a SWMU or AOC shall be managed in a manner protective of human health and the environment and in compliance with all applicable Federal, State and local requirements. Until such time as final regulations are adopted, proposed regulations under Subpart S (Corrective Action for Solid Waste Management Units; Federal Register; Friday, July 27, 1990; pages 30797-30884, §§264.550, 264.551, and 264.552) shall be applicable as guidance for managing

these wastes. Approval of units for managing wastes and conditions for operating the units, if approved, shall be granted through the permitting process.

VII.C. SPECIFIC CONDITIONS FOR SURFACE IMPOUNDMENTS/LANDFILLS

VII.C.1. Operation and Construction of Surface Impoundments and Landfills

VII.C.1.a. The Permittees shall not place hazardous waste in any surface impoundment or landfill unless the unit meets the Minimum Technological Requirements outlined in 20.4.1.500 NMAC (incorporating 40 CFR §§264.221(a) and 264.301(a)). The Secretary must approve plans and specifications for retrofitting or construction prior to commencement of construction by the Permittees.

VII.C.2. Surface Impoundment/Landfill Specific Waste Ban

The Permittees shall not place hazardous waste prohibited by 20.4.1.800 NMAC (incorporating 40 CFR §268) in any surface impoundment or landfill unless:

VII.C.2.a. The waste meets treatment standards specified in 20.4.1.800 NMAC (incorporating 40 CFR §§268.40, 268.41, 268.42, and 268.43);

VII.C.2.b. A variance from the treatment standards has been granted pursuant to 20.4.1.800 NMAC (incorporating 40 CFR §268.44);

VII.C.2.c. A petition has been granted on a case-by-case extension to the effective date, pursuant to 20.4.1.800 NMAC (incorporating 40 CFR §268.5);

VII.C.2.d. A "no-migration" petition has been granted pursuant to 20.4.1.800 NMAC (incorporating 40 CFR §268.6); or

VII.C.2.e. A surface impoundment is exempt under 20.4.1.800 NMAC (incorporating 40 CFR §268.4).

VII.D. SPECIFIC CONDITIONS FOR INFORMATION REPOSITORIES

VII.D.1. Establishment of Information Repositories

The Permittees shall establish information repositories in the cities of Carlsbad, Albuquerque, and Santa Fe, New Mexico. The Permittees shall establish the

repositories no later than thirty (30) calendar days after the effective date of this Permit. The purpose of these information repositories is to provide the public an opportunity to review and comment on the corrective action activities specified in this Module. These repositories shall be established at a local public library and/or similar facility which is easily accessible to the public. This Permit Condition shall be incorporated into the requirements specified in Permit Condition [VII.U.3.i](#) (Community Relations Plan).

VII.D.2. Notice Requirements

- VII.D.2.a. Within thirty (30) calendar days after the effective date of this Permit, the Permittees shall mail a notice to all individuals on the facility mailing list maintained by the Secretary, including all individuals that submitted oral or written comments or testimony on the Permittees' draft Permit during the public comment period. The Permittees shall, within six (6) months after the effective date of this Permit and every six (6) months thereafter, submit to the Secretary amendments to the facility mailing list to include those individuals that submit a written request to the Secretary and/or the Permittees for inclusion in this list.
- VII.D.2.b. This notice shall state the location, purpose, and contents of the repositories.
- VII.D.2.c. The Permittees shall state in this notice that written comments concerning each scheduled submittal (excluding progress reports and correspondence) required by this Module shall be forwarded to representatives of the regulatory agencies identified in Permit Condition [VII.B.5](#) within fifteen (15) calendar days of the date each submittal is due to the Secretary.
- VII.D.2.d. A copy of this notice shall be provided to the Secretary, for approval, prior to mailing to the public.

VII.D.3. Contents of the Information Repositories

Once established, the Permittees shall place into the repositories, on or before the date due to the Secretary, all documents (e.g., all correspondence, progress reports, work plans and reports) as specified

in this Module, and those documents deemed appropriate by the Secretary. The Permittees shall specify within the text or cover letter of each document the date each submittal was placed or will be placed in the repositories.

VII.D.4. Notification of Document Availability

On or before five (5) calendar days prior to the due date of each submittal (excluding progress reports and correspondence) required by this Module, the Permittees shall mail a notice to each individual, specified in Permit Condition [VII.D.2.a](#), indicating the date the respective submittal will be made available for public review at the repositories. This notice shall reiterate the statement required by Permit Condition [VII.D.2.c](#) and shall be provided to the Secretary as specified in Permit Condition [VII.D.2.d](#).

VII.E. CORRECTIVE ACTION FOR RELEASES

VII.E.1. Sections 74-4-4.A.5.h and 74-4-4.2 of the HWA

Sections 74-4-4.A.5.h and 74-4-4.2 of the HWA and 20.4.1.500 NMAC (incorporating 40 CFR §264.101) require that Permits issued after April 8, 1987, shall require corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any SWMU at a treatment, storage, or disposal facility, regardless of the time at which the waste was placed in the SWMU.

VII.E.2. Section 74-4-4.A.5.i of the HWA

Section 74-4-4.A.5.i of the HWA and 20.4.1.500 NMAC (incorporating 40 CFR §264.101(c)) require corrective action beyond the facility boundary where necessary to protect human health and the environment unless the Permittees demonstrate to the satisfaction of the Secretary that, despite the Permittees' best efforts, the Permittees were unable to obtain the necessary permission to undertake such actions.

VII.E.3. Sections 3004(u) and 3004(v) of RCRA

The Permittees may also be required to take corrective action for releases of hazardous waste or hazardous constituents from any SWMU at the facility, or beyond the facility property boundaries, regardless of when the waste was placed under Section 3004(u) and 3004(v) of RCRA.

VII.F. DISPUTE RESOLUTION

- VII.F.1. The parties shall use their best efforts to informally and in good faith resolve all disputes arising out of this Module. The Permittees shall not invoke dispute resolution for purposes of delay. If, however, disputes arise concerning the corrective action which the parties are unable to resolve informally, the following procedures shall apply. If Permittees' dispute concerns its inability to meet a specified deadline, then the Permittees shall inform the Secretary in writing at least thirty (30) calendar days in advance of the deadline. The Permittees shall submit a written statement that sets forth the nature of the dispute, the work affected by the dispute including specific compliance dates, and all factual data, analysis, opinion, or documentation supporting the Permittees' position.
- VII.F.2. The Secretary shall provide Permittees written notice of its disapproval or modification of any interim submission under HSWA, including, but not limited to, implementation of work plans, approval of documents, scheduling of any work, or recommendation, performance, or completion of any correction action. The written notice of disapproval or modification shall set forth the reasons for the disapproval or modification. If the Permittees disagree, in whole or in part, with any such written notice, the Permittees shall notify the RCRA Permits staff manager, in writing, within fifteen (15) calendar days of receipt of the written notice. The Permittees and the RCRA Permits staff shall use their best efforts to informally and in good faith resolve the dispute. The Permittees are entitled to meet with RCRA Permits staff manager in person at the Secretary's office or by teleconference, if it so desires, in order to resolve the dispute.
- VII.F.3. If Permittees and the RCRA Permits staff are unable to resolve the dispute, the Permittees may request a final decision by the Secretary. Within thirty (30) calendar days of receipt of the Secretary's written notice, the Permittees shall submit to the Permit approval authority a written statement of its arguments and explanations of its position. The written statement shall include, at a minimum, the specific points of dispute, the position the Permittees maintain 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 Permittees request an informal conference in front of the Permit

approval authority. The Permittees' failure to follow the procedures set forth in this paragraph will constitute a waiver of their right to further consideration of the dispute.

VII.F.4. The Secretary has full discretion to determine whether an informal conference, if requested by the Permittees, will be held.

VII.F.5. The Secretary shall consider the written position of the Permittees and the oral arguments, if an informal conference is convened, and shall provide a written statement of its decision based on the record. This statement shall be considered to be incorporated as an enforceable part of the Permit. The written statement shall respond to the Permittees' arguments and shall set forth the reasons for the Secretary's final decision. Such decision shall be the final resolution of the dispute and shall be implemented immediately by the Permittees according to the schedule contained therein.

VII.F.6. Notwithstanding the invocation of this dispute resolution procedure, the Permittees shall proceed to take any action required by those portions of the submission and of the Permit the Secretary determines are not substantially affected by the dispute.

VII.G. ACTION LEVELS

VII.G.1. Applicability of Action Levels

Action levels, described in the RFI guidance document referenced in Permit Condition [VII.M.2.d.i](#), shall be used by the Permittees to determine the need for further corrective actions under this Module. Except as otherwise specified in Permit Conditions [VII.P](#) and [VII.Q](#), the Permittees shall conduct a CMS whenever concentrations of hazardous constituents in ground water, soils, or air exceed action levels for any environmental medium, and there is reason to believe that such hazardous constituents have been released from a SWMU at the facility. However, action levels are not reference levels that trigger specific responses if exceeded. Instead, action levels help focus and prioritize project objectives and data requirements during the planning and implementing of site-specific RFIs. Thus, action levels are not the same as cleanup levels, although in some cases a final cleanup level may equal the action level.

VII.G.2. Calculation of Action Levels

The Permittees shall adhere to RFI guidance in the calculation of action levels for all the environmental media specified in this Module. The Permittees shall ensure action level calculations account for the potential of exposure to multiple contaminants and through multiple routes. These action levels shall be updated as new toxicity data and promulgated standards (e.g., maximum contaminant levels) are derived. The most recent reference doses, reference concentrations, and cancer slope factors (e.g., data found in EPA's Integrated Risk Information System) shall be used in the calculation of action levels. The toxicity data available at the time that a determination for further action is made (i.e., requirement to conduct a CMS), including interim measures, shall be used in the calculations. If used as final cleanup levels, action levels shall be calculated using the most recent toxicity data and promulgated standards existing at the time of implementation of corrective measures.

VII.H. RISK ASSESSMENTS

VII.H.1. Performance of Risk Assessments

The Permittees shall conduct human health and ecological risk assessments as required by Permit Condition [VII.H.3.b](#) and as necessary to determine risks to human health and the environment. These risk assessments shall be used to establish baseline risk at a site and/or to derive interim or final cleanup levels at the site. These risk assessments, if necessary, shall be performed concurrently with the corrective action activities specified in this Module, including any activities undertaken during implementation of the activities proposed in the RFI Work Plan. These risk assessments may also be performed concurrently with the RFI Report and Summary and the CMS Phase of this Module, as specified in Permit Conditions [VII.H.5](#) and [VII.V](#) respectively, but only after the Permittees have determined the full vertical and horizontal nature, rate, and extent of contamination at each respective SWMU.

VII.H.2. Applicable Guidance Documents and Publications

The Permittees shall use, but not be limited to, the following EPA documents and publications, including any subsequent revisions, in the performance of the required risk assessments:

- VII.H.2.a. "Compendium of ORD and OSWER Documents Relevant to RCRA Corrective Action," EPA530-B-92-003, April 1992;
 - VII.H.2.b. "Risk Assessment Guidance for Superfund;" Volume I, Interim Final; Part A, EPA/540/1-89/002, December 1989 ; Part B, Publication 9285.7-01b, December 1991; Part C, EPA/540/R-92/004, December 1991; and Part D, EPA/540/R-97/033, January 1998.
 - VII.H.2.c. "Ecological Assessments of Hazardous Waste Sites, A Field and Laboratory Reference Document," EPA/600/3-89/013, March 1989;
 - VII.H.2.d. "ECO Update, Ecological Assessment of Superfund Sites: An Overview," Publication 9345.0-05I, Vol. 1, No. 2, December 1991;
 - VII.H.2.e. "ECO Update, Developing A Work Scope for Ecological Assessments," Publication 9345.0-05I, Vol. 1, No. 4, May 1992
 - VII.H.2.f. "Framework for Ecological Risk Assessment," Risk Assessment Forum, EPA/603/R-92/001, 1992; and
 - VII.H.2.g. "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments," Interim Final, U.S. EPA Emergency Response Team, Edison, NJ, June 1997.
 - VII.H.2.h. "EPA Region 6 Human Health Media-Specific Screening Levels," August 1998.
- VII.H.3. Baseline Risk Assessments
- VII.H.3.a. Baseline human health and ecological risk assessments, if required by the Secretary, shall be used to evaluate the risks posed by contaminants at a site prior to the beginning of any corrective actions. This type of risk assessment shall be used in certain circumstances (specified in Permit Condition [VII.H.3.b](#) below) instead of action levels described in Permit Condition [VII.G](#) to determine the need for remedial action.
 - VII.H.3.b. Although action levels should be sufficiently protective of human health and the environment, they may be inappropriate under certain

circumstances. Such exceptions will apply, but not be limited to the following circumstances. In cases where there are confirmed releases to ground water, surface water, air, or sediments, a baseline risk assessment shall be required to determine the need for stabilization/interim measures, especially where health advisories have been issued by local/State governments. In addition, action levels may be inappropriate at a site where leaching from contaminated soils into ground water poses greater risk than ingestion of the soils or where food-chain transfer of contaminants may be of human health concern.

- VII.H.3.c. If an action level has been exceeded, for any of the environmental media of concern, at any time during the corrective action activities required by this Module, the Permittees may be required to conduct a risk assessment to determine risks to human health and the environment and the necessity to perform interim measures, as specified in Permit Condition [VII.L](#). Risk assessments to determine final cleanup levels or to be used in justifying no further action determinations shall be conducted only after the Permittees have determined the full vertical and horizontal nature, rate, and extent of contamination for each SWMU or groups of SWMUs specified in this Module.

VII.H.4. Risk Assessments for Deriving Cleanup Levels

- VII.H.4.a. Risk assessments, if required by the Secretary, may also be used to establish interim cleanup levels, in addition to the final cleanup level. Risk assessments may be required as specified in Permit Condition [VII.H](#). In addition, where selected remedies cannot meet acceptable risk levels or action levels (if action levels are chosen as final cleanup levels), a risk assessment may also be required.
- VII.H.4.b. The Secretary will review risk assessments as part of the CMS Phase of the corrective action activities specified in this Module in deriving final cleanup levels, but only after the Permittees have determined the full vertical and horizontal nature, rate, and extent of contamination from each SWMU or groups of SWMUs specified in this Module.

VII.H.5. Use of Risk Assessments in Justifying No Further Action Determinations by the Permittees

The Permittees may submit a risk assessment(s) justifying no further action at a SWMU(s) concurrently with submittal of the RFI Report and Summary specified in Permit Condition [VII.O](#), only if the Permittees have determined the full vertical and horizontal nature, rate, and extent of contamination for each SWMU or group of SWMUs specified in this Module.

VII.I. REPORTING REQUIREMENTS

- VII.I.1. The Permittees shall submit, in accordance with Permit Condition [VII.B.5](#), signed quarterly progress reports of all activities (i.e., RFI, CMS) conducted pursuant to the provisions of this Module beginning no later than ninety (90) calendar days from the date of initiating each activity. These reports shall contain:
- VII.I.1.a. A description of the work completed and an estimate of the percentage of work completed;
 - VII.I.1.b. Summaries of all findings, including summaries of laboratory data;
 - VII.I.1.c. Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems;
 - VII.I.1.d. Projected work for the next reporting period;
 - VII.I.1.e. Summaries of contacts pertaining to corrective action or environmental matters with representatives of the local community, public interest groups or State government during the reporting period;
 - VII.I.1.f. Changes in key project personnel during the reporting period;
 - VII.I.1.g. Changes in funding (actual or anticipated) which may impact completion date of the activity; and
 - VII.I.1.h. Summaries of all changes made in implementation during the reporting period.
- VII.I.2. Copies of other reports relating to or having bearing upon the corrective actions specified in this Module (e.g., inspection reports, drilling logs, and laboratory

data) shall be made available to the Secretary upon request.

VII.I.3. In addition to the written reports required in Permit Condition [VII.I.1](#) and [VII.I.2](#), the Permittees shall provide, at the request of the Secretary, status reviews through semi-annual briefings with the Secretary. The Secretary will notify the Permittees at least thirty (30) calendar days prior to the semi-annual meeting.

VII.I.4. The Permittees shall provide, at the request of the Secretary, any other relevant information as required by Permit Condition I.E.8.

VII.J. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SWMUS AND POTENTIAL AOCs

VII.J.1. The Permittees shall notify the Secretary, in writing, of any newly-identified SWMU(s) and potential AOCs (i.e., a SWMU or AOC not specifically identified during the RFA), discovered in the course of ground water monitoring, field investigations, environmental audits, or other means, no later than thirty (30) calendar days after discovery. The Permittees shall also notify the Secretary of any newly-constructed land-based SWMUs (including but not limited to, surface impoundments, waste piles, landfills, land treatment units) and newly-constructed SWMUs where any release of hazardous constituents may be difficult to identify (e.g., underground storage tanks) no later than thirty (30) calendar days after construction. The notification shall include the following items, to the extent available:

VII.J.1.a. The location of the newly-identified SWMU or potential AOC and all existing SWMUs and AOCs on the topographic map required under 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(19));

VII.J.1.b. The type and function of the newly-identified SWMU or potential AOC;

VII.J.1.c. The general dimensions, capacities, and structural description of the newly-identified SWMU or potential AOC (supply any available drawings);

VII.J.1.d. The period during which the newly-identified SWMU or potential AOC was operated;

VII.J.1.e. The specifics, to the extent available, on all wastes that have been or are being managed at the newly-identified SWMU or potential AOC; and

VII.J.1.f. Results of any sampling and analysis required for the purpose of determining whether releases of hazardous waste including hazardous constituents have occurred, are occurring, or are likely to occur from the newly-identified SWMU or whether the potential AOC shall be considered a SWMU.

VII.J.2. Based on the results of this Notification the Secretary will designate the newly-identified AOC(s). Based on the results of this notification or investigation conducted as specified in Permit Condition [VII.M.2.b](#), the Secretary will determine the need for further investigations or corrective measures at any newly-identified SWMU(s) or AOC(s). If the Secretary determines that such investigations are needed, the Secretary may require the Permittees to prepare a plan for such investigations. The plan for investigation of a SWMU(s) or AOC(s) will be reviewed for approval as part of the RFI Work Plan or a new RFI Work Plan under Permit Condition [VII.M.4](#). The Permit will be modified as specified in Permit Condition [VII.B.3](#) to incorporate the investigation requirements for the newly-identified AOC(s) identified pursuant to Permit Condition [VII.J.1](#) or SWMUs identified pursuant to Permit Condition [VII.M.2.b](#) if an investigation is required.

VII.K. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMU(S) AND AOC(S)

The Permittees shall notify the Secretary verbally of any release(s) from a SWMU or AOC of hazardous waste or hazardous constituents discovered during the course of ground water monitoring, field investigation, environmental auditing, or other means, no later than twenty-four (24) hours after discovery. This notification shall also be made in writing no later than fifteen (15) calendar days after discovery. Such newly-discovered releases may be from newly-identified SWMUs or AOCs, newly-constructed SWMUs, or from SWMUs or AOCs for which, based on the findings of the RFA, completed RFI, or investigation of an AOC(s), the Secretary had previously determined no further investigation was necessary. The notification shall include information concerning actual and/or potential impacts beyond the facility boundary and on human health and the environment, if available at the time of the notification. The Secretary may require further investigation and/or interim measures for the newly-identified release(s), and

may require the Permittees to prepare a plan for the investigation and/or interim measure. The plan will be reviewed for approval as part of the RFI Work Plan or a new RFI Work Plan under Permit Condition [VII.M.4](#). The Permit will be modified as specified in Permit Condition [VII.B.3](#) to incorporate the investigation, if required.

VII.L. INTERIM MEASURES

- VII.L.1. If during the course of any activity initiated under this Module, the Secretary determines that a release or potential release of hazardous constituents from a SWMU poses a threat to human health and the environment, the Secretary may require interim measures. The Secretary shall determine the specific measure(s) or require the Permittees to propose a measure(s). The interim measure(s) may include a Permit modification, a schedule for implementation, and a written plan. The Secretary shall notify the Permittees in writing of the requirement to perform interim measures. The Secretary shall determine whether a Permit modification pursuant to Permit Condition [VII.B.3](#) is necessary to incorporate interim measures required by the Secretary into the Permit.
- VII.L.2. The Permittees may propose interim measures at any time. The proposal shall include a written plan and a schedule for implementation. The Secretary shall determine whether a Permit modification pursuant to Permit Condition [VII.B.3](#) is necessary for the interim measure.
- VII.L.3. The following factors will be considered by the Secretary in determining the need for interim measures and the need for Permit modification:
- VII.L.3.a. Time required to develop and implement a final corrective measure;
 - VII.L.3.b. Actual and potential exposure to human and environmental receptors;
 - VII.L.3.c. Actual and potential contamination of drinking water supplies and sensitive ecosystems;
 - VII.L.3.d. The potential for further degradation of the medium in the absence of interim measures;
 - VII.L.3.e. Presence of hazardous wastes in containers that may pose a threat of release;

- VII.L.3.f. Presence and concentration of hazardous wastes, including soil contaminated with hazardous constituents, that have the potential to migrate to ground water or surface water;
- VII.L.3.g. Weather conditions that may affect the current levels of contamination;
- VII.L.3.h. Risks of fire, explosion, or accident; and
- VII.L.3.i. Other situations that may pose threats to human health and the environment.

VII.M. RFI WORK PLAN

VII.M.1. The Permittees shall submit a Facility Work Plan to the Secretary within ninety (90) calendar days of the effective date of this Permit. The Facility Work Plan shall include the following information, as specified in Permit Condition [VII.U.3](#), to address the facility-wide approach to corrective action:

- VII.M.1.a. Project Management Plan
- VII.M.1.b. Data Collection Quality Assurance Plan
- VII.M.1.c. Data Management Plan
- VII.M.1.d. Site Safety and Health Plan
- VII.M.1.e. Community Relations Plan

The Permittees shall submit to the Secretary modifications to the Facility Work Plan on an annual basis, within ninety (90) calendar days after the anniversary date of this Permit.

VII.M.2. The Permittees shall submit the RFI Work Plan, as specified in Permit Condition [VII.U.3](#), to the Secretary within one hundred eighty (180) calendar days of the effective date of this Permit. The RFI Work Plan shall address releases of hazardous waste or hazardous constituents to the soil media, including other media as specified in this Module, for those SWMUs listed in Table 2 (Page [59](#)). Historical analytical data may be submitted in justification of RFI Work Plan activities for each of these SWMUs.

The Permittees shall investigate ground water and air media under this Module if RFI activities show that significant releases have or are occurring at any of the

SWMUs listed in Table 2 of this Module, or any AOCs listed in Table 3 if determined to be SWMUs, that could present a threat to human health or the environment via these pathways.

- VII.M.2.a. The RFI Work Plan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the direction, rate, movement, and concentration of releases of hazardous waste or hazardous constituents from a specific SWMU or groups of SWMUs, and their actual or potential receptors. The RFI Work Plan shall detail all proposed activities and procedures to be conducted at the facility, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI. The Scope of Work for an RFI is specified in Permit Condition [VII.U](#).
- VII.M.2.b. The RFI Work Plan shall determine if the AOCs listed in Table 3 (page [61](#)) are SWMUs. The RFI Work Plan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to determine if activity at the AOC resulted in solid waste management at any time. If such determination is made the AOC shall be designated as a newly-identified SWMU. If hazardous wastes including hazardous constituents are determined to be managed at the SWMU and if the Secretary determines that further investigation is necessary, a plan for the investigation shall be prepared as specified in Permit Condition [VII.J.2](#).
- VII.M.2.c. The RFI Work Plan shall describe sampling, data collection quality assurance, and data management procedures, including formats for documenting and tracking data and other results of investigations, and health and safety procedures.
- VII.M.2.d. Development of the RFI Work Plan and reporting of data shall be consistent with the following EPA guidance documents or the equivalents or updates thereof:

- i. "RCRA Facility Investigation Guidance Document," EPA 530/SW-89-031, Volumes I-IV, May 1989;
- ii. "RCRA Ground-Water Monitoring: Draft Technical Guidance," EPA/530-R-93-001, November 1992;
- iii. "RCRA Groundwater Monitoring Technical Enforcement Guidance Document," OSWER 9950.1, September 1986;
- iv. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd Edition, 1996; and
- v. "RCRA Corrective Action Plan," Final, Office of Solid Waste and Emergency Response (OSWER), OSWER Directive 9902.3-2A, May 1994.

VII.M.3. After the Permittees submit the RFI Work Plan, the Secretary shall either approve, disapprove, or modify and approve the RFI Work Plan in writing.

If the Secretary approves the RFI Work Plan, the Permittees shall begin implementation of the plan within fifteen (15) calendar days of the receipt of approval, and implement it according to the schedules contained in the plan. All approved RFI Work Plans become incorporated into this Permit pursuant to Permit Condition [VII.B.6](#).

In the event of disapproval (in whole or in part) of the RFI Work Plan, the Secretary shall specify deficiencies in writing. The Permittees shall correct these deficiencies and submit a modified RFI Work Plan within thirty (30) calendar days of such written notification to the Secretary for review. If the Permittees take exception to all or part of the disapproval, the Permittees shall submit a written statement of the grounds for the exception within fifteen (15) calendar days of receipt of the disapproval as specified in Permit Condition [VII.F](#). The time periods set forth in this paragraph may be extended for good cause upon the Permittees' written request and the Secretary's written approval.

VII.M.4. The Secretary shall review for approval as part of the RFI Work Plan or as a new RFI Work Plan any plans developed pursuant to Permit Condition [VII.J](#) addressing further investigations of newly-identified SWMUs or potential AOCs, or Permit Condition [VII.K](#) addressing new releases from previously-identified SWMUs or AOCs.

VII.N. RFI IMPLEMENTATION

Upon receipt of written approval from the Secretary for the RFI Work Plan, the Permittees shall implement the RFI according to the schedules and in accordance with the approved RFI Work Plan and the following requirements:

- VII.N.1. The Permittees shall notify the Secretary in writing at least ten (10) calendar days prior to any field sampling, field testing, or field monitoring activity required by this Permit to give Agency personnel the opportunity to observe investigation procedures and/or split samples.
- VII.N.2. Deviations from the approved RFI Work Plan which are necessary during implementation of the investigations must be approved by the Secretary and fully documented and described in the progress reports and in the RFI Report.

VII.O. RFI REPORT AND SUMMARY

- VII.O.1. The RFI Work Plan may provide for the implementation of the RFI in stages. Within sixty (60) calendar days after the completion of each stage of the RFI, the Permittees shall submit an RFI Report and Summary. The RFI Report shall describe the procedures, methods, and results of all investigations as described in Permit Condition [VII.U.5](#). The RFI Report includes SWMUs and their releases, the nature, rate, and extent of contamination at the facility, sources and migration pathways, action levels, and actual or potential receptors. The RFI Report shall present all information gathered under the approved RFI Work Plan. The RFI Report shall contain adequate information to support further corrective action decisions at the facility. The Summary shall summarize the RFI Report by briefly describing the procedures, methods, and results of the RFI.
- VII.O.2. After the Permittees submit the RFI Report and Summary, the Secretary shall either approve or disapprove them in writing.

If the Secretary approves the RFI Report and Summary, the Permittees shall mail the approved Summary to all individuals on the facility mailing list established pursuant to 20.4.1.1103 NMAC (referencing 40 CFR §124.10(c)(1)(ix)), within fifteen (15) calendar days of receipt of approval.

If the Secretary determines the RFI Report and Summary do not fully meet the objectives stated in Permit Condition [VII.U](#), the Secretary may disapprove the RFI Report and Summary. If the Secretary disapproves the Report, the Secretary shall notify the Permittees in writing of the Report's deficiencies and require submittal of a revised RFI Report and Summary within thirty (30) calendar days of such notification, or the Secretary shall modify the RFI Report before approval. Once approved, the Summary shall be mailed to all individuals on the facility mailing list as specified above, unless the Permittees take exception to the conditions of the approved RFI Report. If the Permittees take exception to any portion of the RFI Report approved by the Secretary, written notification of the exception(s) will be sent to the Secretary in accordance with dispute resolution provisions of Permit Condition [VII.F](#). The time periods set forth in this paragraph may be extended for good cause upon the Permittees' written request and the Secretary's written approval.

- VII.O.3. Action levels, as discussed in Permit Condition [VII.G](#), shall be used by the Permittees to determine the need for further corrective action under this Module. Action levels are not the same as cleanup levels, although in some cases a final cleanup level may equal the action level.

VII.P. DETERMINATION OF NO FURTHER ACTION

- VII.P.1. Based on the results of the RFI and/or other relevant information, the Permittees may petition the Secretary for a Class III Permit modification under 20.4.1.900 NMAC (incorporating 40 CFR §270.42(c)) to terminate the RFI/CMS process for a specific SWMU. This petition shall contain information demonstrating that there are no releases of hazardous waste or hazardous constituents to the soil from a particular SWMU at the facility that pose threats to human health and/or the environment, as well as additional information required in 20.4.1.900 NMAC (incorporating 40 CFR §270.42(c)).

If, based upon review of the Permittees' request for a Permit modification, the results of the RFI, and other information, including comments received during the public comment period required for Class III Permit modifications, the Secretary determines that releases or suspected releases which were investigated either are non-existent or do not pose a threat to human health and/or the environment, the Secretary may grant the requested modification.

VII.P.2. A determination of no further action shall not preclude the Secretary 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 Secretary shall initiate a modification to the Permit as specified in Permit Condition [VII.B.3](#).

VII.Q. CMS PLAN

VII.Q.1. If the Secretary has reason to believe that a SWMU has released hazardous waste or hazardous constituents to the soil, or if the Secretary determines that hazardous waste or hazardous constituents present a threat to human health or the environment given action levels or site-specific exposure conditions, the Secretary may require a CMS and shall notify the Permittees in writing. The notification may also specify remedial alternatives to be evaluated by the Permittees during the CMS.

VII.Q.2. The Permittees shall submit a CMS Plan to the Secretary within ninety (90) calendar days from notification of the requirement to conduct a CMS. The Scope of Work for a CMS Plan is specified in Permit Condition [VII.V](#).

The CMS Plan shall provide the following information:

- VII.Q.2.a. A description of the general approach to the investigation, and potential remedies;
- VII.Q.2.b. A definition of the overall objectives of the study;
- VII.Q.2.c. Specific plans for evaluating remedies to ensure compliance with corrective measure standards;
- VII.Q.2.d. Schedules for conducting the study; and
- VII.Q.2.e. The proposed format for the presentation of information.

VII.Q.3. After the Permittees submit the CMS Plan, the Secretary shall either approve, disapprove, or modify and approve the plan in writing.

If the Secretary approves the CMS Plan, the Permittees shall implement the plan as specified in Permit Condition [VII.R](#).

In the event of disapproval (in whole or in part) of the CMS Plan, the Secretary shall specify deficiencies in writing. The Permittees shall modify the plan to correct these within the time frame specified in the notice of deficiency. The modified CMS Plan shall be submitted in writing to the Secretary for review. If the Permittees take exception to the disapproval, decision, or directive, the Permittees shall submit a written statement of the grounds for the exception in accordance with dispute resolution provisions specified in Permit Condition [VII.F](#). The time periods set forth in this paragraph may be extended for good cause upon the Permittees' written request and the Secretary's written approval.

VII.R. CMS IMPLEMENTATION

No later than fifteen (15) calendar days after the Permittees have received written approval from the Secretary for the CMS Plan, the Permittees shall implement the Corrective Measures Study according to the schedules specified in the approved CMS Plan. All approved plans become incorporated into this Permit as specified in Permit Condition [VII.B.6](#).

VII.S. CMS REPORT AND SUMMARY

VII.S.1. Within sixty (60) calendar days after the completion of the CMS, the Permittees shall submit a CMS Report and Summary. The Summary shall summarize the CMS Report. The CMS Report shall discuss the results of investigations of each corrective measure alternative studied and of any bench-scale or pilot tests conducted. It shall include an evaluation of each remedial alternative. The CMS Report shall present all information gathered during the CMS, and shall contain adequate information to support the corrective measure selection process. In the CMS Report, the Permittees shall propose a corrective action program that shall:

VII.S.1.a. attain compliance with corrective action objectives for hazardous constituents in each medium, as established in Permit Condition [VII.V](#);

VII.S.1.b. control sources of releases;

VII.S.1.c. meet acceptable waste management requirements;
and

VII.S.1.d. protect human health and the environment.

- VII.S.2. After the Permittees submit the CMS Report and Summary, the Secretary will either approve or disapprove them in writing. If the Permittees take exception to the disapproval, decision, or directive, the Permittees shall notify the Secretary as specified in Permit Condition [VII.F.](#)

If the Secretary approves the CMS Report and Summary, the Permittees shall mail the approved Summary to all individuals on the facility mailing list established pursuant to 20.4.1.1103 NMAC (referencing 40 CFR §124.10(c)(1)(ix)) within fifteen (15) calendar days of receipt of approval.

If the Secretary determines the CMS Report and Summary do not fully meet the objectives stated in Permit Condition [VII.V.](#), the Secretary may disapprove the CMS Report and Summary. If the Secretary disapproves the Report, the Secretary shall notify the Permittees in writing of the Report's deficiencies and require submittal of a revised CMS Report and Summary within thirty (30) calendar days of such notification. Once approved, the Summary shall be mailed to all individuals on the facility mailing list as specified above. The time periods set forth in this paragraph may be extended for good cause upon the Permittees' written request and the Secretary's written approval.

- VII.S.3. Based on preliminary results and the CMS Report, the Secretary may require the Permittees to evaluate additional remedies or particular elements of one or more proposed remedies.

VII.T. CORRECTIVE MEASURE SELECTION AND IMPLEMENTATION

Within fifteen (15) calendar days after approval of the CMS Report and Summary, the Secretary shall initiate modification of the Permit as specified in Permit Condition [VII.B.3.](#), for corrective measure selection, based on the approved CMS Report. The resultant modified Permit will include schedules for corrective measure implementation.

VII.U. RFI SCOPE OF WORK

VII.U.1. Purpose

The purpose of the RFI is to determine the nature, rate, and extent of releases of hazardous wastes or hazardous constituents from SWMUs and AOCs. The required information shall include, but is not limited to, each item specified under Tasks I-III. The Permittees shall

furnish all personnel, materials, and services necessary for, or incidental to, performing the RFI. The Secretary may specify additional information requirements through policy statements or guidance documents.

If the Permittees believe that certain requirements of the Scope of Work are not applicable, the specific requirements shall be identified and a detailed rationale for inapplicability shall be provided.

VII.U.2. Scope

The RFI shall consist of three tasks:

Task I: RFI Work Plan

- a. Introduction
- b. Environmental Setting
- c. Source Characterization
- d. Contamination Characterization
- e. Potential Receptor Identification
- f. Data Collection Quality Assurance Plan
- g. Data Management Plan
- h. Health and Safety Plan
- i. Community Relations Plan
- j. Project Management Plan

Task II: RCRA Facility Investigation

Task III: RFI Report and Summary

VII.U.3. Task I: RFI Work Plan

The Permittees shall prepare an RFI Work Plan as specified in Permit Condition [VII.M](#). The RFI Work Plan shall provide for and address the following information:

VII.U.3.a. Introduction

- i. Facility Description

The introduction 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. Information from existing reports and studies is acceptable, as long as the source of this information is documented, pertinent, and reflective of current conditions. This section shall include:

- (a) Map(s) depicting the information specified below. All maps shall be consistent with requirements set forth in 20.4.1.900 NMAC (incorporating 40 CFR §270.14) and shall be of sufficient detail and accuracy to locate all current and future work performed at the site.
- i) general geographic location;
 - ii) property lines, with the owners of all adjacent property clearly indicated, and all land previously owned and/or used by the Permittees around the facility;
 - iii) topography, waterways, wetlands, floodplains, water features, and drainage patterns;
 - iv) all tanks, buildings, utilities, paved areas, rights-of-way, and other features;
 - v) all SWMUs and AOCs;
 - vi) all known past solid or hazardous waste treatment, storage and disposal areas or units regardless of whether they were active on November 19, 1980;
 - vi) surrounding land uses (residential, commercial, agricultural, recreational); and
 - viii) the location of all production and ground water monitoring wells. These wells shall be clearly labeled and the ground and top of casing elevations included (these elevations may be included as an attachment).
- (b) A history and description of ownership and operation, and solid and hazardous waste generation, treatment, storage and disposal activities at the facility.
- (c) A summary of approximate dates or periods of past waste releases, identification of the materials released, the amount released, the location released, and a

description of the response actions conducted (local, State, or Federal response units, or private entities), including any inspection reports or technical reports generated as a result of the response.

- (d) A reference to a representative number of relevant environmental, geologic, and hydrogeologic studies performed by any person or entity, at or near the facility, with a short summary of the purpose, scope, and significant findings thereof.
- (e) A reference to all environmental Permits (applied for and/or received), the purpose thereof, and a short summary of requirements.

ii. Nature, Rate, and Extent of Contamination

- (a) The Introduction shall summarize all possible sources of contamination, including, at a minimum, all SWMUs listed in Table 2 and AOCs listed in Table 3. For each possible source, the Permittees shall identify the following information:
 - i) location of possible source on a facility map;
 - ii) quantities of solid, hazardous, and radiochemical wastes, to the extent known;
 - iii) quantities of radiochemical and hazardous constituents, to the extent known; and
 - iv) identification of possible sources where additional information is necessary.
- (b) The Permittees shall prepare an assessment and description of the existing nature, rate, and extent of contamination, including the following information:
 - i) available monitoring data and qualitative information on locations

and levels of contamination at the facility;

- ii) all potential migration pathways including relevant information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and
- iii) the potential impact(s) on human health or the environment, including demography, ground water and surface water use, and land use.

iii. Implementation of Interim Measures

The Permittees shall document and report on all interim measures which have been or are being undertaken at the facility, including the following information, as applicable:

- (a) Objectives of the interim measures: how the measure is mitigating a potential threat to human health or the environment and/or is consistent with and integrated into requirements for a long term solution;
- (b) Requirements and schedules for design, construction, operation, maintenance, and monitoring;
- (c) Schedule for progress reports;
- (d) Stabilization that has occurred at the site;
- (e) Proposed further investigation and/or action; and
- (f) Justification for limiting the scope of the RFI.

VII.U.3.b. Environmental Setting

The RFI Work Plan shall provide for collection of information to supplement and verify existing information on the environmental setting at the facility. The RFI Work Plan shall provide for characterization of the following information:

i. Hydrogeology

The RFI Work Plan shall describe in detail a program to evaluate hydrogeologic conditions at the facility, including the following information:

- (a) A description of the regional, local, facility-wide, and SWMU-specific geologic and hydrogeologic characteristics affecting ground water flow beneath the facility.
- (b) An analysis of any topographic features including surface water bodies that might influence the ground water flow system.
- (c) A representative and accurate classification and description of the hydrogeologic units which may be part of migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units) based on field data, tests (e.g., gamma and neutron logging of existing and new wells, piezometers and borings), and cores.
- (d) The extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of migration pathways based on field studies and cores, structural geology, and hydrogeologic cross sections, including:
 - i) unconsolidated sand and gravel deposits;
 - ii) zones of fracturing or channeling in consolidated or unconsolidated deposits; and
 - iii) zones of high or low permeability that might direct and restrict the flow of contaminants.
- (e) A description of representative water level or fluid pressure based on data obtained from ground water monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source. Information needs include: potentiometric surface maps; hydrologic cross sections showing vertical gradients;

vertical and horizontal components of flow;
temporal changes in hydraulic gradients;
and flow nets.

- (f) A description of man-made influences that may affect site hydrogeology such as active and inactive local water-supply and production wells, pipelines, french drains, and ditches.

ii. Soils

The Permittees shall describe in detail a program designed to characterize soil and rock units above the water table. Such characterization shall include, but is not limited to, the following information: surface soil distribution; soil profile, including ASTM and USCS classifications of soils; transects of soil stratigraphy; saturated hydraulic conductivity; porosity; cation exchange capacity (CEC); soil pH; particle size distribution; depth to water table; moisture content; effect of stratification on unsaturated flow; infiltration; evapotranspiration; water balance scenarios; residual concentration of contaminants in soil; total natural organic carbon content; and mineral and metal content.

VII.U.3.c. Source Characterization

The Permittees shall describe in detail a program designed to completely characterize the nature, rate, and extent of waste contamination and areas where wastes have been placed, including quantification of the following specific characteristics at each source area:

- i. Unit/disposal area characteristics, including but not limited to: location of unit/disposal area; type of unit/disposal area; design features; operating practices (past and present); period of operation; age of unit/disposal area; general physical conditions; and method used to close the unit/disposal area.
- ii. Waste characteristics, including but not limited to: type of waste placed in unit (hazardous classification, quantity, chemical composition); physical and chemical characteristics (physical form, physical description, temperature, Ph,

general chemical class, molecular weight, density, boiling point, viscosity, solubility in water, solubility in solvents, cohesiveness, vapor pressure); and migration and dispersal characteristics of the waste (sorption coefficients, biodegradability, photodegradation rates, hydrolysis rates, chemical transformations).

VII.U.3.d. Contamination Characteristics

The Permittees shall describe in detail a program to collect analytical data on ground water, soils, surface water, sediment, and subsurface gas contamination when necessary to characterize contamination from a SWMU. The data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data required 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. All media (soil and including those media specified in this Module) shall be investigated (see Permit Condition [VII.M](#) [RFI Work plan]). If the Permittees believe certain media could not be affected by a release from a specific SWMU, a detailed justification for not investigating those media shall be provided. The Permittees shall address the following types of contamination at the facility as appropriate:

i. Ground Water Contamination

The RFI Work Plan shall describe in detail a program of ground water investigation to characterize any ground water plumes of contamination at the facility that are not subject to corrective action requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.100). The Permittees shall document the procedures used to characterize the nature, rate, and extent of ground water contamination (e.g., well design, well construction, geophysical methods employed, ground water modeling, etc.). The program shall at a minimum provide the following information:

- (a) a description of the horizontal and vertical nature, rate, and 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 concentrations of any 20.4.1.500 NMAC (incorporating 40 CFR §264, Appendix IX) constituents;
- (e) an evaluation of factors influencing the plume movement; and
- (f) an extrapolation of future contaminant movement.

ii. Soil Contamination

The Permittees shall describe in detail a program to characterize contamination of soil and rock units above the water table in the vicinity of the contaminant release. The program shall provide for the following information:

- (a) a description of the vertical and horizontal nature, rate, and extent of contamination;
- (b) a description of contaminant and soil chemical properties within the contaminant source area. This description shall include contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, natural total organic carbon content, and other factors that might affect contaminant migration and transformation.
- (c) plume migration and transformation; specific contaminant concentrations; the velocity and direction of contaminant movement; and an extrapolation to future contaminant movement.

iii. Surface Water Contamination

The Permittees shall describe in detail a program to characterize contamination in surface

water bodies resulting from contaminant releases at the facility. The Permittees shall document the procedures used to characterize the nature, rate, and extent of surface water contamination. This program shall at a minimum provide the following information:

- (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.

iv. Air Contamination

The Permittees shall describe in detail a program to characterize particulate and gaseous contaminants released into the atmosphere. This investigation shall provide the following information:

- (a) a description of the horizontal and vertical direction and velocity of contaminant movement;
- (b) the rate and amount of the release;
- (c) the chemical, radiochemical, and physical composition of the contaminants released, including horizontal and vertical concentration profiles; and
- (d) the possibility of future airborne releases.

v. Subsurface gas

The Permittees shall describe in detail a program to characterize the nature, rate, and extent of releases of reactive gases into the subsurface. The Permittees shall document the procedures used to characterize the nature, rate, and extent of subsurface gas contamination. This program shall at a minimum provide the following information:

- (a) provisions for monitoring subsurface gases release from any SWMU; and
- (b) an assessment of the potential for these releases to pose a threat to human health and the environment.

VII.U.3.e. Potential Receptors

The Permittees shall describe in detail a program to collect data to describe human populations and environmental systems that are susceptible to contaminant exposure from the facility. The following characteristics shall be identified:

- i. Local uses and possible future uses of ground water, including:
 - (a) type of use (i.e., potable, domestic, agricultural, residential, industrial, municipal)
 - (b) location of all ground water wells, names of owners or tenants at those locations, USGS/DODT well designations, and current use of those wells within a one (1) mile radius of the facility.
- ii. Local uses and possible future uses of surface waters within a 1.5 mile radius of the facility, including domestic and municipal, recreational, agricultural, industrial, and environmental.
- iii. Human use of or access to the facility and adjacent lands, including but not limited to recreation, hunting, residential, commercial, and industrial.

- iv. A demographic profile of people who use or have access to the facility and adjacent land, including, but not limited to age, gender, and sensitive subgroups.
- v. A description of the local ecology, including biota in surface water bodies on, adjacent to, or affected by the facility, and a description of any endangered or threatened species near the facility.
- vi. Chemical and radiochemical analysis of biological samples and data on observable effects in ecosystems may be required, as directed by the Secretary.

VII.U.3.f. Data Collection Quality Assurance Plan

The Permittees 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, to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

- i. The Strategy Section of the Data Collection Quality Assurance Plan shall include but not be limited to the following information:
 - (a) description of the intended uses for the data, and the necessary level of precision and accuracy for those intended uses;
 - (b) description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data; and
 - (c) schedule and information to be provided in quality assurance reports, including but not limited to:
 - i) periodic assessment of measurement data accuracy, precision, and completeness;
 - ii) results of performance audits;
 - iii) results of systems audits; and

- iv) significant quality assurance problems and resolutions.
- ii. The Sampling and Field Measurements Section of the Data Collection Quality Assurance Plan shall discuss, but not be limited to:
- (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 shall be conducted;
 - (d) determining which parameters are to be measured and where;
 - (e) selecting the frequency of sampling and length of sampling period;
 - (f) selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;
 - (g) delineating procedures designed to prevent contamination of sampling or field measurements equipment and cross contamination between sampling points;
 - (h) documenting field sampling operations and procedures;
 - (i) selecting appropriate sample containers;
 - (j) preserving samples;
 - (k) controlling chain-of-custody; and
 - (l) disposing of all contaminated materials generated by activities in a manner compliant with all State and Federal regulations.
- iii. The Sample Analysis Section of the Data Collection Quality Assurance Plan shall include:
- (a) chain-of-custody procedures;

- (b) sample storage procedures and holding times;
- (c) sample preparation methods;
- (d) analytical procedures;
- (e) calibration procedures and frequency;
- (f) data reduction, validation and reporting; and
- (g) frequency of internal quality control checks and laboratory performance audits.

VII.U.3.g. Data Management Plan

The Permittees 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 (data record), project file requirements, and project-related progress reporting procedures and documents.

- i. The data record shall include at least the following information for all sample and field measurements: unique measurement code; measurement location; measurement type; laboratory ID number; property or component analyzed; and results of analysis.
- ii. The Data Management Plan shall provide the format to be used to present the data and conclusions of the investigation. The following information shall be presented:
 - (a) Tables: raw data; data sorted by significant features such as location, media, constituent; data reduction for statistical analysis; and summary data.
 - (b) Graphical formats (e.g., bar graphs, line graphs, plan maps, isopleth plots, cross-sections, three-dimensional displays, etc.): sampling location and grid; levels of contamination at each sampling location; geographical extent of contamination; and changes in concentration relative to source, time, depth, and other parameters.

VII.U.3.h. Health and Safety Plan

- i. The Permittees shall prepare a facility Health and Safety Plan, which shall include:
 - (a) a description of the facility including availability of resources such as roads, water supply, electricity and telephone service;
 - (b) a description of the known hazards and evaluation of the risks associated with each activity conducted, including but not limited to on and off-site exposure to contaminants during implementation of interim measures;
 - (c) a list of key personnel and alternatives responsible for site safety, response operations, and for protection of public health;
 - (d) a delineation of the work area;
 - (e) a description of levels of protection to be worn by personnel in the work area;
 - (f) procedures established to control site access;
 - (g) decontamination procedures for personnel and equipment;
 - (h) site emergency procedures;
 - (i) emergency medical care procedures for injuries and toxicological problems;
 - (j) requirements for an environmental field monitoring program;
 - (k) routine and special training requirements for responders; and
 - (l) procedures for protecting workers from weather-related problems.
- ii. The Facility Health and Safety Plan shall be consistent with:

- (a) NIOSH Occupation Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
- (b) EPA Order 1440.1 - Respiratory Protection;
- (c) EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;
- (d) approved Facility Contingency Plan;
- (e) EPA Operating Safety Guide (1984);
- (f) OSHA regulations, particularly, 29 CFR Parts 1910 and 1926;
- (g) State and local regulations; and
- (h) other EPA guidance as provided.

VII.U.3.i. Community Relations Plan

The Permittees shall prepare a plan for dissemination of information to the public regarding investigation activities and results. The Community Relations Plan shall include:

- i. establishing a facility mailing list of interested persons and entities pursuant to 20.4.1.1103 NMAC (referencing 40 CFR §124.10(c)(1)(ix)) and updating it semiannually as specified in Permit Condition [VII.D.2.a](#);
- ii. informal meetings, including briefings and workshops as appropriate, with the public and local officials before and during the RFI process, which includes activities associated with the RFI Work Plan and RFI Report;
- iii. news releases, fact sheets, approved RFI Work Plans, RFI Reports, Special Permit Conditions Reports and publicly available quarterly progress reports which explain the progress and conclusions of the RFI;
- iv. creation of public information repositories and reading rooms;
- v. updates of materials in the information repositories and reading rooms;

- vi. quarterly technical progress reports for the Secretary; and
- vii. procedures for immediate notification of affected persons or entities in case of a newly discovered off-site release which could impact them.

VII.U.3.j. Project Management Plan

The Permittees shall prepare a Project Management Plan which will include:

- i. a discussion of the technical approach, schedules, budget, and key project personnel;
- ii. a description of qualifications of key project personnel performing or directing the RFI, including contractor personnel; and
- iii. the overall management approach to the RFI.

VII.U.4. Task II: RCRA Facility Investigation

The facility investigation activities shall follow the RFI Work Plan. 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. During the RFI, it may be necessary to revise the RFI Work Plan to increase or decrease the detail of information collected to accommodate the facility specific situation. The Permittees shall obtain approval for all deviations from and revisions to the RFI Work Plan as specified in Permit Condition [VII.N.2](#).

The Permittees shall conduct investigations of SWMUs and AOCs previously identified with known or suspected releases of contamination to characterize the facility (Environmental Setting), define the source (Source Characterization), define the nature, rate, and extent of contamination (Contamination Characterization), and identify actual or potential receptors.

The investigations shall result in data of adequate technical quality to develop and evaluate corrective measures alternatives during the Corrective Measures Study, when necessary.

VII.U.5. Task III: RFI Report and Summary

The Permittees shall analyze all facility investigation data collected during the RFI process and prepare a detailed report on the nature, rate, and extent of contamination at the facility including sources and migration pathways. All information generated during the investigation shall be presented and analyzed. All evidence and procedures used for making any determinations (e.g., velocity of groundwater, nature, rate, and extent of contamination) shall be fully documented. The report shall describe the nature, rate, and extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area. The report shall contain the results of all tests, calculations, inspections, record searches, and observations. It shall contain soil and ground water contamination profiles (as applicable), statistical comparisons, and the results of all sampling events conducted as part of the investigation. It shall display results in tables, graphs, maps, and cross sections as discussed in the Data Management Plan and Permit Condition [VII.U.3.g.ii](#).

The Permittees shall identify all relevant and applicable standards for the protection of human health or the environment (e.g., National Ambient Air Quality Standards, Federally-approved State water quality standards, ground water protection standards, etc.)

Data shall be evaluated to ensure it is sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature, rate, and extent of contamination, to evaluate the potential threat to human health or the environment, and to support a CMS, if required. The report shall present all data in an Appendix.

VII.V. CMS SCOPE OF WORK

VII.V.1. Purpose

The purpose of the CMS is to develop and evaluate corrective measures alternatives and to recommend the corrective measure or measures to be taken. The required information shall include each item specified under CMS Tasks IV-VI. The Permittees will furnish the personnel, materials, and services necessary to prepare the CMS, except as otherwise specified.

If the Permittees believe 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.

VII.V.2. Scope

The Corrective Measure Study consists of three tasks:

Task IV: CMS Plan

- a. Description of Current Situation
- b. Establishment of Corrective Action Objectives
- c. Description of Approach to CMS
- d. Schedule for CMS

Task V: Corrective Measures Study

- a. Identification of Corrective Measures Alternatives(s)
- b. Screening of Corrective Measures Alternatives(s)
- c. Development of Corrective Measures Alternative(s)
- d. Evaluation of Corrective Measures Alternative(s)

Task VI: CMS Report and Summary

VII.V.3. Task IV: CMS Plan

VII.V.3.a. Description of Current Conditions

The Permittees shall describe current conditions at the facility to update information provided in the RFI Report and Summary (Task III). This shall include previous and/or ongoing remedial activity or interim measures.

VII.V.3.b. Establishment of Corrective Action Objectives

The Permittees shall propose to the Secretary for review and approval, facility specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable State and Federal statutes and regulations.

VII.V.3.c. Description of Approach to CMS

The Permittees shall describe the general approach to the CMS. The approach shall include identification, development, screening, and

evaluation of the corrective measures alternatives, as discussed in detail in Permit Condition [VII.V.4](#). The Permittees shall describe specific plans for laboratory and bench-scale studies, or field studies, if needed. Specific plans for evaluating corrective measure effectiveness shall also be developed. The approach shall specify formats to be used for data presentation, including raw data, maps, charts, graphs, engineering schematics, construction design, etc.

VII.V.3.d. Schedule for CMS

The Permittees shall develop a schedule for implementing the CMS, and a schedule for submitting quarterly progress reports on the study implementation.

VII.V.4. Task V: Corrective Measures Study

The CMS shall consist of five parts: identification, screening, development, evaluation, and recommendation of the corrective measures alternative(s).

VII.V.4.a. Identification of Preliminary Corrective Measures Alternative(s)

Based on the results of the RFI and the CMS Plan objectives, the Permittees shall identify all possible alternatives for removal, containment, treatment and/or other remediation of the contamination.

VII.V.4.b. Screening of Preliminary Corrective Measures Alternative(s)

The Permittees shall screen the identified preliminary corrective measures alternatives to eliminate those that may not prove feasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that will not achieve the corrective action 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 technological limitations.

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

- i. Site Characteristics - Site data shall be reviewed to identify conditions which may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics shall be eliminated from further consideration.
- ii. 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 waste characteristics shall be eliminated from consideration.
- iii. Technological Limitations. The level of technology development, performance record, and 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.

VII.V.4.c. Development of Corrective Measures Alternative(s)

The Permittees shall develop corrective measures alternatives based on corrective measures objectives, and identification and screening of preliminary alternatives. The Permittees shall rely on engineering practice to determine which of the previously identified and screened technologies appear most suitable for the site. Technologies can be combined to form the overall corrective measures alternatives. The alternatives developed shall represent a workable number of options that individually or in combination adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittees shall document the reasons for excluding technologies.

When a new technology is proposed or similar waste streams have not routinely been treated or disposed of using the technology, the Permittees shall conduct laboratory and/or bench-scale

studies to determine the applicability to facility conditions. The Permittees shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

- i. The Permittees shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.
- ii. Upon completion of testing, the Permittees shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.
- iii. The Permittees shall prepare a report summarizing the testing program and its results, both positive and negative.

VII.V.4.d. Evaluation of Corrective Measures Alternative(s)

The Permittees shall evaluate each corrective measures alternative developed in Permit Condition [VII.V.4.c](#). The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittees shall also develop cost estimates for each corrective measures alternative.

- i. Technical, Environmental, Human Health, and Institutional Concerns

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

- (a) Technical

The Permittees shall evaluate each corrective measures alternative based on performance, reliability, implementability and safety.

- i) The Permittees shall evaluate performance based on the effectiveness and useful life of the corrective measures alternative.
 - a) Effectiveness shall be evaluated in terms of the ability to perform intended functions such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measures alternative 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 shall also consider the effectiveness of combinations of technologies.
 - b) Useful life is defined as the length of time the level of effectiveness can be maintained. Each corrective measures alternative 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, shall be considered in estimating the useful life of the project.
- ii) The Permittees shall provide information on the reliability of each corrective measures alternative including operation and maintenance requirements and demonstrated reliability.
 - a) Operation and maintenance requirements include the frequency and complexity of operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities shall 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.

- b) Risk and effect of failure are measured by determining demonstrated and expected reliability. The Permittees shall evaluate whether 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 measures alternative has the flexibility to deal with uncontrollable changes at the site.

- iii) The Permittees shall describe the implementability of each corrective measures alternative including relative ease of installation (constructibility) and total time required to achieve a given level of response.
 - a) Constructibility is determined by conditions both internal and external to facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of facility (i.e., remote location vs. congested urban area). The Permittees shall evaluate what measures can be taken to facilitate construction under site specific 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.

b) Time has two components to be addressed: the time it takes to implement a corrective measures alternative and the time it takes to see beneficial results. Beneficial results are defined as the reduction of contaminants to acceptable levels as established in the corrective measures objectives.

iv) The Permittees shall evaluate each corrective measures alternative with regard to safety. This evaluation shall consider threats to the safety of nearby communities and environments as well as those to workers during implementation, including fire, explosion, and exposure to hazardous and radioactive substances.

(b) Environmental

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

(c) Human Health

The Permittees shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measures alternative. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure

routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or regulations acceptable to the Secretary.

(d) Institutional

The Permittees shall assess relevant institutional needs for each alternative including, but not limited to, 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.

ii. Cost Estimate

The Permittees shall develop an estimate of the cost of each corrective measures alternative and for each phase or segment of the alternative. The cost estimate shall include capital, and operation and maintenance costs.

(a) Capital costs consist of direct and indirect costs.

i) Direct capital costs include:

- a) Construction costs: Cost of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measures alternative;
- b) Equipment costs: Costs of treatment, containment, disposal and/or servicing of equipment used to implement the action;
- c) Land and site development costs: Expenses associated with purchase of land and development of existing property; and

- d) Building and services costs: Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.
- ii) Indirect capital costs include:
 - a) Engineering expenses: Costs of administration, design, construction, supervision, drafting, and testing of corrective measures alternatives;
 - b) Legal fees and license or Permit costs: Administrative and technical costs necessary to obtain licenses and Permits for installation and operation;
 - c) Start-up and shakedown costs: Costs incurred during corrective measures alternative start-up; and
 - d) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances such as adverse weather conditions, strikes, and inadequate facility characterization.
- (b) Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measures alternative. The Permittees shall consider the following operation and maintenance costs:
 - i) Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operation;
 - ii) Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

- iii) Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;
- iv) Purchased services: Sampling costs, laboratory fees, and professional fees which can be predicted;
- v) Disposal and treatment: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operation;
- vi) Administrative costs: Costs associated with administration of corrective measures operation and maintenance not included under other categories;
- vii) Insurance, taxes, and licensing costs: Costs of such items as liability and accident insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and Permit renewal and reporting costs;
- viii) Maintenance reserve and contingency funds: Annual payments into escrow funds to cover costs of anticipated replacement or rebuilding of equipment, and any large unanticipated operation and maintenance costs; and
- ix) Other costs: Items that do not fit any of the above categories.

VII.V.4.e. Recommendation of Corrective Measures Alternative(s)

The Permittees shall recommend corrective measures alternative(s) using technical, human health, and environmental criteria. At a minimum, the following criteria shall be used to recommend the final corrective measures alternative(s).

i. Technical

- (a) Performance - Corrective measures alternative(s) which are most effective at performing their intended functions and maintaining performance over extended periods of time shall be preferred;
- (b) Reliability - Corrective measures alternative(s) which do not require frequent or complex operation and maintenance activities and have proven effective under conditions similar to those anticipated shall be preferred;
- (c) Implementability - Corrective measures alternative(s) which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time shall be preferred; and
- (d) Safety - Corrective measures alternative(s) which pose the least threat to the safety of nearby residents and environments as well as workers during implementation shall be preferred.

ii. Human Health

The corrective measures alternative(s) shall comply with existing EPA criteria, standards, or regulations for the protection of human health. Corrective measures alternatives which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time shall be preferred.

Iii Environmental

The corrective measures alternative(s) imposing the least adverse impact or greatest improvement on the environment over the shortest period of time shall be preferred.

VII.V.5. Task VI: CMS Report and Summary

The Permittees shall prepare a CMS Report and Summary presenting the results of the CMS and recommending a corrective action program. The CMS Report shall at a minimum include:

- VII.V.5.a. A summary of all the corrective measures alternatives originally identified, and the screening rationale employed. The results of development of each alternative shall be described, and the evaluation of those developed shall be presented in detail. The report shall describe the rationale for recommendation of a corrective measures alternative, including performance expectations, preliminary design criteria and rationale, general operation and maintenance requirements, and long-term monitoring requirements. The report shall include summary tables which allow the alternative or alternatives to be easily understood. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted.
- VII.V.5.b. A proposed corrective action program that will attain compliance with concentration level objectives, control sources of releases, meet acceptable waste management requirements, and protect human health and the environment.
- VII.V.5.c. Design and implementation precautions, including special technical problems, additional engineering data required, Permits and regulatory requirements, access, easements, and right-of-way, health and safety requirements, and community relations activities.
- VII.V.5.d. Cost estimates and schedules including capital cost estimate, operation and maintenance cost estimate, and project schedule (design, construction, operation).
- VII.V.5.e. A schedule for corrective measure implementation.

Table 1 - RFI/CMS Schedule of Compliance

Reporting Requirements	Due Date
1. Progress Reports	Quarterly and no later than ninety (90) calendar days after initiating each activity.
2. Facility Work Plan	Ninety (90) calendar days after the effective date of this Permit.
3. Modifications to Facility Work Plan	Annually.
4. RFI Work Plan	One hundred eighty (180) calendar days after the effective date of this Permit (for the SWMUs and AOCs listed in Tables 2 and 3, respectively).
5. Amended RFI Work Plan	Thirty (30) calendar days of the receipt of the Notice of Deficiencies.
6. RFI Report and Summary	Sixty (60) calendar days after completion of the RFI.
7. Amended RFI Report and Summary	Thirty (30) calendar days of the receipt of the Notice of Deficiencies.
8. Notification of Newly-Identified SWMUs or potential AOCs	Thirty (30) calendar days after discovery of the SWMU or AOC.
9. Notification of Newly-Discovered Releases	Verbal notification within twenty-four (24) hours, written notification fifteen (15) calendar days after discovery of the release.
10. Interim Measures Plan	As determined by the Secretary.
11. Amended Interim Measures Plan	As determined by the Secretary.
12. CMS Plan	Ninety (90) calendar days after notification of the requirement to perform a CMS.
13. Amended CMS Plan	Thirty (30) calendar days of the receipt of the Notice of Deficiencies.
14. CMS Report and Summary	Sixty (60) calendar days after the completion of the CMS.
15. Amended CMS Report and Summary	Thirty (30) calendar days after the receipt of the Notice of Deficiencies

Table 2 - SWMUS Requiring an RFI	
SWMU Number	Name
Reserved	Reserved

Table 2A - SWMUS Not Requiring an RFI	
SWMU Number	Name
TRU Mixed Waste Management Unit (6 SWMUs)	
SWMU 013a	Waste Handling Building Unit
SWMU 013b	Parking Area Unit
SWMU 013c	Underground HWDU - Panel 1
SWMU 013d	Underground HWDU - Panel 2
SWMU 013e	Underground HWDU - Panel 3
SWMU 013f	Underground HWDU - Panel 4

Table 3 - AOCs Included in the Permit

AOC Number & (Name)	Rationale for Inclusion
Reserved	Reserved

Table 4 - SWMUS/AOCS Requiring No Further Action

SWMU/AOC Number	Name	Comments
SWMU 001g	H-14/P-1 Mud Pit (s)	NFA granted 10/23/2008
SWMU 001h	H-15/P-2 Mud Pit (s)	NFA granted 10/23/2008
SWMU 001j	P-3 Mud Pit	NFA granted 10/23/2008
SWMU 001k	P-4 Mud Pit	NFA granted 10/23/2008
SWMU 001l	WIPP-12/P-5 Drilling Mud Pit(s)	NFA granted 10/23/2008
SWMU 001m	P-6 Mud Pit	NFA granted 10/23/2008
SWMU 001n	P-15 Mud Pit	NFA granted 10/23/2008
SWMU 001o	Badger Unit Drilling Mud Pit(s)	NFA granted 10/23/2008
SWMU 001p	Cotton Baby Drilling Mud Pit(s)	NFA granted 10/23/2008
SWMU 001q	DOE-1 Drilling Mud Pit(s)	NFA granted 10/23/2008
SWMU 001s	ERDA-9 Mud Pit	NFA granted 10/23/2008
SWMU 001t	IMC-374 Mud Pit	NFA granted 10/23/2008
SWMU 001x	WIPP-13 Drilling Mud Pit(s)	NFA granted 10/23/2008
SWMU 004a	Portacamp Storage Yard, West Side	NFA granted 10/23/2008
SWMU 007b	SW Evaporation Pond	NFA granted 10/23/2008
AOC 001r	D-123 Mud Pit	NFA granted 10/23/2008
AOC 001u	IMC-376 Mud Pit	NFA granted 10/23/2008
AOC 001v	IMC-456 Mud Pit	NFA granted 10/23/2008
AOC 001w	IMC-457 Mud Pit	NFA granted 10/23/2008
AOC 001ac	DSP-207 Mud Pit	NFA granted 10/23/2008
AOC 001ae	IMC-377 Mud Pit	NFA granted 10/23/2008
AOC 010b	Waste Handling Shaft Sump	NFA granted 10/23/2008
AOC 010c	Exhaust Shaft Sump	NFA granted 10/23/2008

VII. MODULE VII - CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT
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