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U. S. DEPARTMENT OF ENERGY

U. S. Environmental Protection Agency
Region V

FEDERAL FACILITIES AGREEMENT

1990

EG&G MOUND APPLIED TECHNOLOGIES

P.O. BOX 3000 MIAMISBURG, OHIO 45343-3000 513-865-4020

operated for the UNITED STATES DEPARTMENT OF ENERGY

Contract No. DE-AC04-88-DP43495

Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

AUG 7 1990

Mr. Valdas V. Adamkus
Regional Administrator
U.S. Environmental Protection
Agency, Region V
230 South Dearborn St.
Chicago, Illinois 60604

Dear Mr. Adamkus:

I have executed the Federal Facility Agreement on behalf of the Department of Energy as requested in your letter dated June 29, 1990. Executed documents are enclosed.

As you are aware from discussions between our staffs, this agreement has been fully coordinated by our respective Headquarters so as to assure full accord between our agencies.

Please extend our gratitude to the members of your staff and for their excellent efforts in making this agreement possible.

Sincerely,

Bruce G. Twining
Manager

Enclosures

cc w/enclosures:
G. Laskar, ERPO
J. Mora, OCC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

IN THE MATTER OF:	)	
	)	
THE UNITED STATES DEPARTMENT OF ENERGY'S	)	FEDERAL FACILITY AGREEMENT UNDER CERCLA SECTION 120
	)	
MOUND (OHIO) PLANT MIAMISBURG, OHIO	)	
	)	
	)	Administrative
OH6 890 008 984	)	Docket Number: V-W- '90 -C- 075

The United States Environmental Protection Agency ("U.S. EPA"), pursuant to Sections 120 and 105 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9620 and 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499 (hereinafter jointly referred to as CERCLA/SARA or CERCLA), placed the Mound Site in Miamisburg, Ohio (the "Site" as defined in Part IV of this Agreement) on the National Priorities List, which is set forth at 40 CFR Part 300, Appendix B, by publication in the Federal Register on November 21, 1989, 54 Fed. Reg. 48184 (November 21, 1989).

Based on the information available to the Parties on the effective date of this FEDERAL FACILITY AGREEMENT (Agreement), and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

I. JURISDICTION

Each Party is entering into this Agreement pursuant to the following authorities:

A. The U.S. Environmental Protection Agency (U.S. EPA), Region V, enters into those portions of this Agreement that relate to the remedial investigation/feasibility study (RI/FS) pursuant to Section 120(e)(1) of CERCLA, 42 U.S.C. Section 9620(e)(1); Sections 6001, 3008(h) and 3004(u) and (v) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6961, 6928(h), 6924(u) and (v), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) (hereinafter jointly referred to as RCRA/HSWA or RCRA); and Executive Order 12580;

B. U.S. EPA, Region V, enters into those portions of this Agreement that relate to interim remedial actions and final remedial actions pursuant to Section 120(e)(2) of CERCLA/SARA, Sections 6001, 3008(h) and 3004(u) and (v) of RCRA, and Executive Order 12580;

C. The U.S. Department of Energy (DOE) enters into portions of this Agreement that relate to the RI/FS pursuant to Section 120(e)(1) of CERCLA, Sections 6001, 3008(h) and 3004(u) and (v) of RCRA, Executive Order 12580, the National Environmental Policy Act, 42 U.S.C. Section 4321, and the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. Section 2011 et seq. ;

D. U.S. DOE enters into those portions of this Agreement that relate to interim remedial actions and final remedial actions pursuant to Section 120(e)(2) of CERCLA/SARA, Sections 6001, 3004(u) and 3008(h) of RCRA, Executive Order 12580 and the AEA.

II. PARTIES

The Parties to this Agreement are the U.S. EPA and U.S. DOE. The terms of this Agreement shall apply to and be binding upon the U.S. EPA, its agents, contractors, employees and response action contractors for the Site and U.S. DOE, its agents, employees, response action contractors for the Site and all subsequent owners, operators and lessees of the Mound Plant. U.S. DOE shall notify U.S. EPA of the identity and assigned tasks of each of its contractors performing work under this Agreement upon their selection. This Agreement shall be enforceable against all of the foregoing via the Parties to this Agreement. This Part shall not be construed as an agreement to indemnify any person. U.S. DOE shall notify its agents, employees, response action contractors for the Site, and all subsequent owners, operators and lessees of the Mound Plant of the existence of this Part. U.S. DOE shall direct its management contractors to comply with this Agreement. Each undersigned representative of a Party certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement and to legally bind such Party to this Agreement.

III. FINDINGS OF FACT

A. The Mound Plant is a facility owned by the government of the United States under the jurisdiction of the United States Department of Energy and operated by EG&G Mound Applied Technologies, Inc.

B. The Mound Plant has been operating since 1948 on an area currently consisting of 306 acres within the city limits of Miamisburg and approximately ten miles south-southwest of Dayton, Ohio.

C. The Mound Plant is involved in a number of weapon and nonweapon programs in fulfilling its missions for U.S. defense. These programs include the research, development and production of weapons, development of isotope separation methods, research and development of nuclear safeguards, development and production of heat sources, and tritium recovery.

D. The Mound Plant is located approximately 2000 feet east of the Great Miami River in Miamisburg, Ohio. Part of the facility is located on top of thin phase glacial till overlying Ordovician Age bedrock. The western area of the Site overlies a portion of the Great Miami Buried Valley aquifer system, a sole source aquifer, from which the City of Miamisburg obtains its drinking water supply using municipal wells which are located across the Great Miami River, but within one-half mile of the Mound Plant. The Mound Plant is surrounded by residential or recreational and agricultural areas.

E. During the operation of the Mound Plant, hazardous wastes have been deposited and/or stored at the Plant.

F. The Mound Plant has a number of waste areas which are known or potential sources of releases of hazardous waste or hazardous constituents, including landfills, surface impoundments, container storage areas, incinerators, air pollution control units, open burn areas, underground storage tanks, wastewater treatment and storage facilities, sumps, drum storage areas, spills, seeps, leach fields, and other miscellaneous units.

G. U.S. EPA placed the Mound Site on the National Priorities List on November 21, 1989.

IV. DEFINITIONS

Except as noted below or otherwise explicitly stated, the definitions provided in CERCLA, SARA and the NCP shall control the meaning of the terms used in this Agreement. In addition, the following definitions shall apply:

A. "Agreement" shall refer to this document and shall include all attachments to this document. All such attachments shall be appended to and made an integral and enforceable part of this document.

B. "ARAR(s)" shall mean applicable or relevant and appropriate requirements as those terms are defined in 40 CFR 300.6.

C. "Attachment(s)" shall mean documents attached to this Agreement. Attachment I shall mean the "Statement of Work for A Remedial Investigation/Feasibility Study (RI/FS) at DOE Mound Plant". Attachment II shall mean "Deliverables - DOE Mound Plant".

D. "Authorized representative" may include a Party's contractors acting in any capacity, including an advisory capacity.

E. "CERCLA" or "CERCLA/SARA" shall mean the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499.

F. "Days" shall mean calendar days, unless business days are specified. Any Submittal or written statement of dispute that under the terms of this Agreement would be due on a Saturday, Sunday or Federal holiday shall be due on the following business day.

G. "Documents" shall mean any record, photograph, video tape, computer disk or tape, or recorded or retrievable information of any kind, relating to treatment, storage, and disposal, and concerning the investigation and cleanup, of hazardous substances, contaminants or pollutants at or migrating from the facility. The term "document" shall be construed broadly to promote the effective sharing between U.S. DOE and U.S. EPA of information and views concerning the work to be done at the site.

H. "Feasibility Study" or "FS" shall mean that study which fully evaluates and develops remedial action alternatives to prevent or mitigate the migration or the release of hazardous substances, pollutants or contaminants at and from the Site.

I. "Hazardous substance", "contaminant", and "pollutant" shall for this Agreement have identical meanings and mean: (a) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act; (b) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of CERCLA; (c) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress) and any hazardous constituents listed at 40 CFR 264 Appendix IX; (d) any toxic pollutant listed under Section 307(a) of the Federal Water Pollution Control Act; (e) any hazardous air pollutant listed under Section 112 of the Clean Air Act; and (f) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to Section 7 of the Toxic Substances Control Act. These terms also include, but are not limited to, any element, substance, compound, or mixture, or combination thereof whether in solid, liquid, semi-solid or contained gaseous form, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by indigestion through food chains, will or may reasonably be anticipated to cause death, disease, behavior abnormalities, cancer, genetic mutation, physiological malfunctions

(including malfunction in reproduction) or physical deformations, in such organisms or their offspring; or which pose a substantial present or potential hazard to human health or safety or the environment. These terms may also include oil and gas.

The terms "contamination" and "pollution" shall for this Agreement have identical meanings and mean the release or threatened release of any hazardous substance, pollutant, or contaminant.

J. "Interim Remedial Actions" or "IRA" shall mean all discrete response actions implemented prior to a final remedial action which are consistent with the final remedial action and which are taken to prevent or minimize the release of hazardous substances, pollutants or contaminants so that they do not migrate or endanger public health, welfare or the environment. All interim remedial actions shall be undertaken in accordance with 40 CFR Part 300.68 and with the requirements of CERCLA/SARA.

K. "Mound Plant" or "Plant" shall mean the area including all building(s), structure(s), installation(s), equipment, pipe(s), or pipeline(s), (including any pipe(s) into a sewer or publicly owned treatment works), well(s), pit(s), pond(s), lagoon(s), impoundment(s), ditch(es), landfill(s), storage container(s), motor vehicle(s), rolling stock, or aircraft, or collection of such item(s), including all property boundaries described in the legal description to be submitted in accordance with the Statement of Work attached to this Agreement.

L. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, and any amendment thereof.

M. "Ohio EPA" or "OEPA" shall mean Ohio Environmental Protection Agency and its employees and authorized representatives.

N. "Operable Unit" means a logical grouping of parts of the Site that are similar such as physical features, contaminant sources or types, schedules, or likely response actions.

O. "Regulated Unit" shall mean a unit operating under conditions imposed by a regulation or permit by any Federal or State regulatory body.

P. "Release" shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing, into the environment including abandonment or discharging of receptacles.

Q. "Remedial Investigation" or "RI" shall mean that investigation conducted to fully determine the nature and extent of the release or threat of release of hazardous substances, pollutants or contaminants and to gather necessary data to support the feasibility study and endangerment assessment.

R. "RCRA" shall mean the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., as amended by the Hazardous and Solid Waste Amendments of 1984, Pub. L. 98-616.

S. "Site" shall mean any area where hazardous substances, pollutants or contaminants have come to be located, due to the activities at the Mound Plant (hereafter referred to as the Site). The U.S. EPA, after consulting with OEPA and U.S. DOE, may change the Site designation on the basis of additional investigations to more accurately reflect the areas contaminated by hazardous substances, pollutants or contaminants, related in whole or in part to the Mound Plant. The work to be performed in this Agreement will conform to the definition of the Site as established by the U.S. EPA.

T. "Solid Waste Management Unit" shall mean any waste management unit from which hazardous constituents may migrate, irrespective of whether or not units were intended for such use. Examples of a SWMU include, but are not limited to: landfills, surface impoundments, waste piles, land treatment units, certain areas associated with production processes at facilities which have become contaminated as a result of routine and systematic releases of wastes, or hazardous constituents from wastes. A product may become a waste if it is abandoned or discarded.

U. "Submittal" shall mean every document, report, schedule, deliverable, work plan or other item to be submitted to U.S. EPA pursuant to this Agreement.

V. "Technical Memorandum" shall mean a report or memorandum intended to be a secondary document, subject to comment, that is neither approved nor disapproved by U.S. EPA. Technical memoranda are generally for dissemination of data or are analysis and interpretation to be incorporated into future primary documents.

W. "Timetables and deadlines" shall mean schedules as well as that work and those actions which are to be completed and performed in conjunction with such schedules (including performance of actions established pursuant to the dispute resolution procedures set forth in Part XXII of this Agreement).

X. "U.S. DOE" or "DOE" shall mean the U.S. Department of Energy, its employees, contractors, agents, successors, assigns and authorized representatives.

Y. "U.S. EPA" shall mean the United States Environmental Protection Agency, its employees and authorized representatives.

V. PURPOSE

A. The general purposes of this Agreement are to:

1. Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and appropriate remedial action taken as necessary to protect the public health, welfare and the environment;

2. Establish a procedural framework and schedule for developing, implementing, maintaining and monitoring appropriate response actions at the Site in accordance with CERCLA/SARA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy; and,

3. Facilitate cooperation, exchange of information and participation of the Parties in such actions.

B. Specifically, the purposes of this Agreement are to:

1. Identify Interim Remedial Action (IRA) alternatives which are appropriate at the Site prior to the implementation of final remedial action(s) for the Site. IRA alternatives shall be identified and proposed to the Parties as early as possible prior to formal proposal of IRAs to U.S. EPA pursuant to CERCLA/SARA. This process is designed to promote cooperation among the Parties in identifying IRA alternatives prior to selection of final IRAs;

2. Establish requirements for the performance of RI(s) to determine fully the nature and extent of the threat to the public health or welfare or the environment caused by the release and threatened release of hazardous substances, pollutants or contaminants at the Site and to establish requirements for the performance of FS(s) for the Site to identify, evaluate, and select alternatives for the appropriate remedial action(s) to prevent,

mitigate, or abate the release or threatened release of hazardous substances, pollutants or contaminants at the Site in accordance with CERCLA/SARA;

3. Identify the nature, objective and schedule of response actions to be taken at the Site. Response actions at the Site shall attain that degree of cleanup of hazardous substances, pollutants or contaminants mandated by CERCLA/SARA;

4. Implement the selected interim and final remedial action(s) in accordance with CERCLA/SARA; and

5. Assure compliance with Federal and State hazardous waste laws and regulations for matters covered by this Agreement.

VI. SCOPE OF AGREEMENT

Under this Agreement the DOE agrees it shall:

A. Conduct Interim Remedial Actions (IRAs) as appropriate with concurrence and approval of U.S. EPA. IRAs may include Remedial Investigation and Feasibility Study work as well as design and implementation of U.S. EPA approved Remedies;

B. Conduct Remedial Investigation(s) (RI)(s) for the Site as described in the Attachments to this Agreement;

C. Conduct Feasibility Study(s) (FS)(s) of the Site as appropriate, based on approved RI(s) and Risk Assessments;

D. Develop remedial action alternative(s) for the Site and proposed plans in accordance with Part X;

E. Submit proposed draft Record(s) of Decision (ROD)(s) to U.S. EPA in accordance with the time schedule set forth in Part X of this Agreement;

F. Following finalization of every ROD as set forth in Part X of this Agreement, develop and submit a RD/RA work plan for design and implementation of the selected remedial action(s) in accordance with Part XI of this Agreement;

G. Following review and approval by U.S. EPA of a RD/RA work plan, implement the remedial action(s) in accordance with Part XI of this Agreement; and

In the event of any inconsistency between Parts I- XXXVII of this Agreement and the Attachments to this Agreement, Parts I- XXXVII of this Agreement shall govern unless and until duly modified pursuant to this Agreement.

U.S. EPA agrees to provide the DOE with guidance and timely response to requests for guidance to assist the DOE in the performance of the requirements under this Agreement.

VII. STATUTORY COMPLIANCE/RCRA-CERCLA INTEGRATION

A. The Parties intend to integrate U.S. DOE's CERCLA response obligations and RCRA corrective action obligations which relate to the release(s) of hazardous substances, pollutants or contaminants covered by this Agreement into this comprehensive Agreement. Therefore, the Parties intend that activities covered by this Agreement will be deemed to achieve compliance with CERCLA, 42 U.S.C. Section 9601 et seq.; to satisfy the corrective action requirements of Sections 3004(u) and (v) of RCRA, 42 U.S.C. Section 6924(u) and (v), for a RCRA permit, and Section 3008(h), 42 U.S.C. Section 6928(h), for interim status facilities; and to meet or exceed all applicable or relevant and appropriate Federal and State laws and regulations, to the extent required by Section 121 of CERCLA, 42 U.S.C. Section 9621.

B. Based upon the foregoing, the Parties intend that any remedial action selected, implemented and completed under this Agreement shall be deemed by the Parties to be protective of human health and the environment such that remediation of releases covered by this Agreement shall obviate the need for further corrective action under RCRA. The Parties agree that with respect to releases of hazardous waste covered by this Agreement, RCRA shall be considered an applicable or relevant and appropriate requirement pursuant to Section 121 of CERCLA.

C. If a permit is issued to U.S. DOE for on-going hazardous waste management activities at the Site, U.S. EPA shall reference and incorporate any appropriate provisions, including appropriate schedules (and the provision for extension of such schedules), of this Agreement into such permit. The Parties intend that the judicial review of any permit conditions which reference this Agreement shall, to the extent authorized by law, only be reviewed under the provisions of CERCLA.

D. Nothing in this Agreement shall alter U.S. DOE's authority with respect to removal actions conducted pursuant to Section 104 of CERCLA, 42 U.S.C. Section 9604.

VIII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Agreement shall be undertaken in accordance with the requirements of all applicable Federal and State laws and regulations to the extent required by CERCLA.

IX. PERMITS

A. U.S. EPA and U.S. DOE recognize, under Section 121(d) and 121(e)(1) of CERCLA, 42 U.S.C. Sections 9621(d) and 9621(e)(1), and the NCP, that portions of the response actions under this Agreement conducted entirely on the Site are exempted from the procedural requirement to obtain Federal, State, or local permits. U.S. DOE must satisfy all Federal and State

standards, requirements, criteria, or limitations that would have been included in any such permit to the extent required by CERCLA and the NCP.

B. When U.S. DOE proposes a response action to be conducted entirely on the Site, which in the absence of Section 121(e)(1) of CERCLA and the NCP would require a Federal or State permit, U.S. DOE shall include in its submittal to U.S. EPA:

1. Identification of each permit that would otherwise be required;

2. Identification of the standards, requirements, criteria, or limitations that would have had to have been met to obtain each such permit; and

3. Explanation of how the response action will meet the standards, requirements, criteria, or limitations identified in subparagraph 2 above.

C. Sections A and B above are not intended to relieve U.S. DOE from the requirement(s) of obtaining a permit whenever it proposes a response action involving the shipment, movement, or any other off-site activity with respect to hazardous substances, pollutants or contaminants from the Facility.

D. U.S. DOE shall notify U.S. EPA in writing of all permits required for off-site activities as soon as practicable after U.S. DOE becomes aware of the requirement. Upon request by U.S. EPA, U.S. DOE shall provide U.S. EPA copies of all such permit applications and any other documents related to the permit process.

X. REMEDIAL INVESTIGATION AND FEASIBILITY STUDIES

A. U.S DOE agrees to develop and implement Remedial Investigation(s) and Feasibility Studies in accordance with the Statement of Work, appended to this Agreement as Attachment I. The Parties recognize that response actions at the Site may proceed in terms of Operable Units, if approved by U.S. EPA.

B. Following finalization of every RI/FS Report (i.e., RI/FS Reports for the Site as a whole and for any Operable Unit) U.S. DOE shall, after consultation with U.S. EPA pursuant to Part XII, publish its proposed plan for public review and comment. Within thirty (30) days following the close of the public comment period, U.S. DOE shall submit to U.S. EPA a draft responsiveness summary and a proposed draft ROD that considers comments received during the public comment period. Within thirty (30) days of receipt of the draft responsiveness summary and proposed draft ROD, U.S. EPA, in consultation with the State, will review and approve or request U.S. DOE to modify the draft responsiveness summary and proposed draft ROD in accordance with U.S. EPA's comments. Within thirty (30) days of receipt of U.S. EPA's comments, U.S. DOE shall incorporate U.S. EPA's comments and submit a draft responsiveness summary and draft ROD to U.S. EPA for its approval or modification. In the event that U.S. EPA approves the initial draft responsiveness summary and proposed draft ROD or the revised draft responsiveness summary and draft ROD, U.S. DOE will sign the final documents and transmit the ROD to U.S. EPA for signature within thirty (30) days of being notified of U.S. EPA's approval. In the event that U.S. EPA does not approve the revised draft responsiveness summary and draft ROD, U.S. EPA, in

consultation with the State, shall modify these documents and sign the ROD. The ROD is final and effective upon signature by the Regional Administrator and not subject to dispute by U.S. DOE.

C. All documents approved pursuant to this section, are incorporated and made an enforceable part of this Agreement.

XI. REMEDIAL DESIGN/REMEDIAL ACTION

A. Within sixty (60) days of finalization of the ROD for the Site as a whole or any Operable Unit, U.S. DOE shall submit to U.S. EPA for approval in accordance with Part XII the work plan to accomplish the remedial design and the remedial action for that Operable Unit (the RD/RA Work Plan). The RD/RA Work Plan(s) shall include but not be limited to appropriate timetables and schedules for implementation of the RD/RA tasks and submittal of RD/RA reports. The RD/RA work plan(s) shall be developed in conformance with the ROD, CERCLA, the NCP, U.S. EPA guidance and policy applicable at the time of the final ROD date, including the Statement of Work (SOW), and any additional guidance documents provided by U.S. EPA.

B. U.S. DOE shall commence the implementation of the RD/RA Work Plan for each Operable Unit within thirty (30) days of the finalization of each work plan. All work shall be conducted in accordance with the NCP, U.S. EPA guidance, and the requirements of the Agreement, including the standards, specifications, and schedules contained in the RD/RA Work Plan.

C. All documents approved pursuant to this section shall be incorporated into and made an enforceable part of this Agreement.

XII. CONSULTATION WITH U.S. EPA

Review and Comment Process for Draft and Final Documents

A. Applicability: The provisions of this Part establish the procedures that shall be used by U.S. DOE and U.S. EPA to provide the Parties with appropriate notice, review, comment, and response to comments regarding RI/FS and RD/RA documents, specified herein as either primary or secondary documents. In accordance with Section 120 of CERCLA, U.S. DOE will normally be responsible for issuing primary and secondary documents to U.S. EPA. As of the effective date of this Agreement, all draft and final reports for any deliverable document identified herein shall be prepared, distributed and subject to dispute in accordance with Paragraphs B through J below.

The designation of a document as "draft" or "final" is solely for purposes of consultation with U.S. EPA in accordance with this Part. Such designation does not affect the obligation of the Parties to issue documents, which may be referred to herein as "final", to the public for review and comment as appropriate and as required by law.

B. General Process for RI/FS and RD/RA documents:

1. Primary documents include those reports that are major, discrete portions of RI/FS or RD/RA activities. Primary documents are initially

ssued by U.S. DOE in draft subject to review and comment by U.S. EPA. Following receipt of comments on a particular draft primary document, U.S. DOE will respond to the comments received and issue a draft final primary document subject to dispute resolution. The draft final primary document will become the final primary document ten (10) working days after the period established for review of a draft final document if changes are not requested by U.S. EPA. If changes are requested the draft final primary document will become the final primary document, when the changes are incorporated to the satisfaction of U.S. EPA, if dispute resolution is not invoked or as modified by decision of the dispute resolution process.

2. Secondary documents include those documents that are discrete portions of the primary documents and are typically input or feeder documents. Secondary documents are issued by U.S. DOE in draft subject to review and comment by U.S. EPA. Although U.S. DOE will respond to comments received, the draft secondary documents may be finalized in the context of the corresponding primary documents. A secondary document may be disputed at the time the corresponding draft final primary document is issued.

C. Primary Documents:

1. U.S. DOE shall complete and transmit draft documents for the following primary documents to U.S. EPA for review and approval in accordance with the provisions of this Part:

a. Limited Additional Studies - Work Plans;

b. RI/FS Work Plan(s);

c. Remedial Investigation Report(s);

d. Treatability Investigation, Bench or Pilot Scale - Work Plan(s);

e. Feasibility Study Report(s);

f. Proposed Plan(s);

g. Yearly Schedules; and

h. RD/RA Work Plan(s).

2. Only the draft final version of the primary documents identified above shall be subject to dispute resolution. U.S. DOE shall complete and transmit draft primary documents in accordance with the timetable and deadlines established in the work plans required under the Statement of Work attached to this Agreement.

D. Secondary Documents:

1. U.S. DOE shall complete and transmit draft documents for the following secondary documents to U.S. EPA for review and comment in accordance with the provisions of this Part:

a. Limited Additional Studies - Report(s);

b. Preinvestigation Evaluation of Remedial Action Technologies;

c. Technical Memoranda Related to the Baseline Risk Assessment;

d. Technical Memoranda related to the Remedial Investigation;

e. Technical Memoranda related to the Feasibility Study; and

f. Monthly Progress Reports.

2. Although U.S. EPA may comment on the draft documents for the secondary documents listed above, such documents shall not be subject to dispute resolution except as provided by Paragraph B hereof. Dates shall be established for the completion and transmission of draft secondary reports and shall be included in the work plans required under the Statement of Work attached to this Agreement.

E. Meeting of the Project Managers on Development of Reports:

The Project Managers shall meet approximately every thirty (30) days, except as otherwise agreed by the Parties, to review and discuss the progress of work being performed at the Site on the primary and secondary documents. Prior to preparing any draft document specified in Paragraphs C and D above, the Project Managers shall meet to discuss the document results in an effort to reach a common understanding, to the maximum extent practicable, with respect to the results to be presented in the draft document.

F. Identification and Determination of Potential ARARs:

1. For those primary documents or secondary documents that consist of or include ARAR determinations, prior to the issuance of a draft document, the Project Managers shall meet to identify and propose, to the best of their ability, all potential ARARs pertinent to the report being addressed. Draft ARAR determinations shall be prepared by U.S. DOE in accordance with Section 121(d)(2) of CERCLA, the NCP and pertinent guidance issued by U.S. EPA, which is not inconsistent with CERCLA and the NCP.

2. In identifying potential ARARs, the Parties recognize that actual ARARs can be identified only on a site-specific basis and that ARARs depend on the specific hazardous substances, pollutants and contaminants at a site, the particular actions proposed as a remedy, and the characteristics of a site. The Parties recognize that ARAR identification is necessarily an iterative process and that potential ARARs must be re-examined throughout the RI/FS process until a Record of Decision ("ROD") is issued.

G. Review and Comment on Draft Documents:

1. U.S. DOE shall complete and transmit each draft primary document to U.S. EPA on or before the corresponding deadline established for the issuance of the document. U.S. DOE shall complete and transmit the draft secondary document in accordance with the target dates established for the issuance of such documents in the work plan required under the Statement of Work attached to this Agreement.

2. Unless the Parties mutually agree to another time period, all draft documents shall be subject to a thirty (30) day period for review and comment. Review of any document by the U.S. EPA may concern all aspects of the document (including completeness) and should include, but is not limited to, technical evaluation of any aspect of the document, and consistency with CERCLA, the NCP and any pertinent guidance or policy promulgated by the U.S. EPA. Comments by the U.S. EPA shall be provided with adequate specificity so that U.S. DOE may respond to the comments and, if appropriate, make changes to the draft report. Comments shall refer to any pertinent sources of authority or references upon which the comments are based, and, upon request

of U.S. DOE, the U.S. EPA shall provide a copy of the cited authority or reference. In cases involving complex or unusually lengthy reports, U.S. EPA may extend the thirty (30) day comment period for an additional twenty (20) days by written notice to U.S. DOE prior to the end of the thirty (30) day period. On or before the close of the comment period, U.S. EPA shall transmit by next day mail their written comments to U.S. DOE.

3. Representatives of U.S. DOE shall make themselves readily available to U.S. EPA during the comment period for purposes of informally responding to questions and comments on draft reports. Oral comments made during such discussions need not be the subject of a written response by U.S. DOE on the close of the comment period, unless otherwise agreed to by the Project Managers.

4. In commenting on a draft document which contains a proposed ARAR determination, U.S. EPA shall include a reasoned statement of whether it objects to any portion of the proposed ARAR determination. To the extent that U.S. EPA does object, it shall explain the basis for its objection in detail and shall identify any ARARs which it believes were not properly addressed in the proposed ARAR determination.

5. Following the close of the comment period for a draft document, U.S. DOE shall give full consideration to all written comments on the draft document submitted during the comment period. Within forty-five (45) days of the close of the comment period on a draft secondary document, U.S. DOE shall transmit to U.S. EPA its written response to comments received within the

comment period. Within forty-five (45) days of the close of the comment period on a draft primary document, U.S. DOE shall transmit to U.S. EPA a draft final primary document which shall include U.S. DOE's response to all written comments received within the comment period. While the resulting draft final document shall be the responsibility of U.S. DOE, it shall be the product of consensus to the maximum extent possible.

6. U.S. DOE may extend the forty-five (45) day period for either responding to comments on a draft document or for issuing the draft final primary document for an additional twenty (20) days by providing notice to U.S. EPA. In appropriate circumstances, this time period may be further extended in accordance with Part XXV hereof.

H. Availability of Dispute Resolution for Draft Final Primary Documents:

1. Dispute resolution shall be available to the Parties for draft final primary documents as set forth in Part XXII.

2. When dispute resolution is invoked on a draft primary document, work may be stopped in accordance with the procedures set forth in Part XXII regarding dispute resolution.

I. Finalization of Documents:

The draft final primary document shall serve as the final primary document if no party invokes dispute resolution regarding the document or, if invoked, at completion of the dispute resolution process should U.S. DOE's

position be sustained. If U.S. DOE's determination is not sustained in the dispute resolution process, U.S. DOE shall prepare, within not more than thirty-five (35) days, a revision of the draft final document which conforms to the results of dispute resolution. In appropriate circumstances, the time period for this revision period may be extended in accordance with Part XXV hereof.

J. Subsequent Modifications of Final Documents:

Following finalization of any primary document pursuant to Paragraph I above, U.S. EPA or U.S. DOE may seek to modify the document, including seeking additional field work, pilot studies, computer modeling or other supporting technical work, only as provided in Paragraphs 1 and 2 below.

1. U.S. EPA or U.S. DOE may seek to modify a document after finalization if it determines, based on new information (i.e., information that became available, or conditions that became known, after the report was finalized) that the requested modification is necessary. U.S. EPA or the DOE may seek such a modification by submitting a concise written request to the Project Manager of the other Party. The request shall specify the nature of the requested modification and how the request is based on new information.

2. In the event that a consensus is not reached by the Project Managers on the need for a modification, either U.S. EPA or the DOE may invoke dispute resolution to determine if such modification shall be conducted. Modification of a document shall be required only upon a showing that: (1) the requested modification is based on significant new

information, and (2) the requested modification could be of significant assistance in evaluating impacts on the public health or the environment, in evaluating the selection of remedial alternatives, or in protecting human health and the environment.

3. Nothing in this Subpart shall alter U.S. EPA's ability to request the performance of additional work pursuant to Part XIII of this Agreement (Additional Work) which does not constitute modification of a final document.

XIII. ADDITIONAL WORK OR MODIFICATION TO WORK

A. In the event that the U.S. EPA determines additional work, or modification to work, including remedial investigatory work and/or engineering evaluation, is necessary to accomplish the objectives of this Agreement, notification of such additional work or modification to work shall be provided to U.S. DOE. U.S. DOE agrees, subject to the dispute resolution procedures set forth in Part XXII, to implement any such work.

B. Any additional work or modification to work determined to be necessary by U.S. DOE shall be proposed by U.S. DOE and will be subject to approval by U.S. EPA prior to initiating any work or modification to work.

C. Any additional work or modification to work approved pursuant to Subpart A or B shall be completed in accordance with the standards, specifications, and schedule determined or approved by U.S. EPA. If any

additional work or modification to work will adversely affect work scheduled or will require significant revisions to an approved Work Plan, the U.S. EPA Project Manager shall be notified immediately of the situation followed by a written explanation within five (5) business days of the initial notification.

XIV. PROJECT MANAGERS

A. The U.S. EPA and U.S. DOE shall each designate a Project Manager and Alternate (hereinafter jointly referred to as Project Manager) for the purpose of overseeing the implementation of this Agreement. Within ten (10) days of the effective date of this Agreement, each Party shall notify the other Party of the name, telephone number and address of its Project Manager.

Any Party may change its designated Project Manager by notifying the other Party, in writing, within thirty (30) days of the change.

B. To the maximum extent possible, communications between the Parties concerning the terms and conditions of this Agreement shall be directed through the Project Managers as set forth in Part XIV of this Agreement. Each Project Manager shall be responsible for assuring that all communications from the other Project Manager are appropriately disseminated and processed by the entities which the Project Managers represent.

C. The U.S. EPA Project Manager shall have the authority vested in an RPM/OSC by the NCP, 40 CFR Part 300. The U.S. EPA Project Manager shall have the authority to:

1. Take samples, request split samples of DOE samples and ensure that work is performed properly and pursuant to U.S. EPA protocols as well as pursuant to the Attachments and plans incorporated into this Agreement;

2. Observe all activities performed pursuant to this Agreement, take photographs and make such other reports on the progress of the work as the Project Manager deems appropriate;

3. Review records, files and documents relevant to this Agreement; and

4. Recommend and request modifications to the work to be performed pursuant to this Agreement, or in techniques, procedures or design utilized in carrying out this Agreement, which are necessary to complete the project.

D. The DOE Project Manager may also recommend and request minor field modifications to the work to be performed pursuant to this Agreement, or in techniques, procedures or design utilized in carrying out this Agreement, which are necessary to complete the project.

E. Any modifications proposed under this Part by any Party must be approved orally by all Project Managers to be effective. If agreement cannot

be reached on the proposed additional work or modification to work, dispute resolution as set forth in Part XXII may be used in addition to this Part.

Within five (5) business days following a modification made pursuant to this Part, the Project Manager who requested the modification shall prepare a memorandum detailing the modification and the reasons therefore and shall provide or mail a copy of the memorandum to the other Project Manager.

F. The Project Manager for U.S. DOE shall be physically present on the Site or reasonably available to supervise work performed at the Site during implementation of the work performed pursuant to this Agreement and shall make himself or herself available to U.S. EPA for the pendency of this Agreement. The absence of the U.S. EPA Project Manager from the Site shall not be cause for work stoppage.

XV. CREATION OF DANGER

In the event the U.S. EPA determines that activities conducted pursuant to this Agreement, or any other circumstances or activities, are creating a danger to the health or welfare of the people on the Site or in the surrounding area or to the environment, U.S. EPA may order U.S. DOE to stop further implementation of this Agreement for such period of time as needed to abate the danger.

XVI. REPORTING REQUIREMENTS

A. Monthly Progress Reports - DOE shall prepare and provide to U.S. EPA written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Agreement during the previous month; (2) include all plans and procedures completed during the previous month; (3) describe all actions, data and plans which are scheduled for the next month(s) and provide other information relating to the progress of construction as is customary in the industry; (4) include information regarding progress toward completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of any Statement of Work or Work Plan, and a description of efforts made to mitigate those delays or anticipated delays. These progress reports are due to U.S. EPA by the tenth day following the month being reported.

B. Other Reporting Requirements - DOE is required to submit the other documents, reports, plans and data required by the Statements of Work and Work Plans within the timeframes contained in the U.S. EPA approved schedules.

C. If the date for submission of any item or notification required by this Agreement falls upon a weekend or State or Federal holiday, the time period for submission of that item or notification is extended to the next working day following the weekend or holiday.

D. Upon the occurrence of any event during performance of the work which, pursuant to Section 103 of CERCLA, requires reporting to the National Response Center, DOE shall promptly orally notify the U.S. EPA Project Manager ("RPM") and/or On-Scene Coordinator ("OSC") and the Ohio EPA Office of Emergency Response. This notification is in addition to the reporting required by Section 103 of CERCLA. Within twenty (20) days of the onset of such an event, DOE shall furnish to U.S. EPA a written report setting forth the events which occurred and the measures taken, and those measures which will be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, DOE shall submit a report setting forth all actions taken to respond thereto.

XVII. FIVE YEAR REVIEW

A. U.S. DOE agrees that U.S. EPA will review any remedial action pursuant to this Agreement, in accordance with Section 121(c) of CERCLA/SARA. If upon such review it is the judgement of U.S. EPA that additional action or modification of the remedial action is appropriate in accordance with Section 104 or 106 of CERCLA/SARA, U.S. EPA shall require U.S. DOE to implement such additional or modified action in accordance with a schedule approved by U.S. EPA.

B. Any dispute by U.S. DOE of the determination by U.S. EPA under this Part shall be resolved under Part XXII (Dispute Resolution) of this Agreement.

XVIII. SAMPLING AND DATA/DOCUMENT AVAILABILITY

A. The Parties shall make available to each other quality assured results of sampling, tests or other data generated by any Party, or on their behalf, with respect to the implementation of this Agreement within forty-five (45) days of their collection or performance. If quality assurance is not completed within forty-five (45) days, raw data or results shall be submitted within the forty-five (45) day period and quality assured data or results shall be submitted as soon as they become available.

B. At the request of the U.S. EPA Project Manager, U.S. DOE shall allow split or duplicate samples to be taken by the U.S. EPA during sample collection conducted during the implementation of this Agreement. U.S. DOE's Project Manager shall endeavor to notify the U.S. EPA Project Manager not less than fourteen (14) business days in advance of any sample collection.

XIX. QUALITY ASSURANCE

DOE shall use quality assurance, quality control, and chain of custody procedures in accordance with U.S. EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans," (QAM-005/80), U.S. EPA Region V QAPP Guidance and subsequent amendments to such guidelines. Prior to the commencement of any monitoring project under this Agreement, U.S. DOE shall submit a Quality Assurance Project Plan ("QAPP") to U.S. EPA that is consistent with the Statements of Work, Work Plans and applicable guidelines. U.S. EPA, after review of DOE's QAPP(s), will notify DOE of any

required modifications, conditional approval, disapproval, or approval of the QAPP(s). Upon notification of disapproval or any need for modifications, U.S. DOE shall make all required modifications in the QAPP subject to dispute resolution provisions of Part XXII. U.S. DOE shall assure that U.S. EPA personnel or authorized representatives are allowed access to any laboratory utilized by U.S. DOE in implementing this Agreement. In addition, U.S. DOE shall have a designated laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring.

XX. ACCESS

A. Without limitation on any authority conferred on U.S. EPA by statute or regulation, U.S. EPA and/or its Authorized Representatives shall have the authority to enter the Mound Site at all reasonable times for purposes consistent with this Agreement.

B. To the extent that access is required by U.S. DOE to areas of the Site presently owned by or leased to parties other than U.S. DOE, U.S. DOE agrees to exercise its authorities to obtain access pursuant to Section 104(e) of CERCLA from the owners or lessees upon the approval of any work plan or any other proposal that requires access to those properties to assure the timely performance of U.S. DOE's obligations under this Agreement. In the event voluntary access has not been obtained by U.S. DOE within thirty (30) days of the approval of any work plan or proposal that requires access to properties not owned or leased to U.S. DOE, U.S. DOE agrees within the next thirty (30) days to refer the matter to the U.S. Department of Justice for the

appropriate judicial process in accordance with available U.S. EPA or U.S. DOE guidance. Any access agreement obtained by U.S. DOE shall provide for reasonable access by U.S. EPA and/or its Authorized Representatives. U.S. DOE shall use its best efforts to assure the access agreements shall also provide that the owners of any property where monitoring wells, pumping wells, treatment facilities, sample locations, or other response actions may be located shall notify U.S. DOE and U.S. EPA by certified mail, return receipt requested, at least thirty (30) days prior to any conveyance of the property owners' intent to convey any interest in the property and of the provisions made for the continued operation of the above-mentioned response actions pursuant to this Agreement. In the event any existing access agreement fails to provide for access for any activity required by this Agreement, U.S. DOE agrees to obtain access in accordance with the foregoing provisions of this paragraph.

XXI. RETENTION AND AVAILABILITY OF INFORMATION

A. DOE shall make available to U.S. EPA and shall retain, during the pendency of this Agreement and for a period to ten (10) years after its termination, at least one copy of all records and documents, other than intermediate drafts, in its possession, custody, or control which relate to the performance of this Agreement, including, but not limited to, documents reflecting the results of any sampling, test, or other data or information generated or acquired by DOE or on its behalf, with respect to the Site, and all documents pertaining to its own or any other person's liability for response action or costs under CERCLA. After the ten (10) year period of

document retention, DOE shall notify U.S. EPA at least ninety (90) calendar days prior to the destruction of any such documents, and upon request by U.S. EPA, DOE shall relinquish custody of the documents or copies of the documents to U.S. EPA.

B. Information, records, or other documents produced under the terms of this Agreement by U.S. EPA and DOE shall be available to the public except: (1) those identified to U.S. EPA or U.S. DOE as classified within the meaning of and in conformance with AEA, or (2) those that could otherwise be withheld pursuant to the Freedom of Information Act or the Privacy Act, unless expressly authorized for release by the originating agency. Documents or information so identified shall be handled in accordance with those regulations. No document marked draft may be made available to the public without prior consultation with the generating Party. If the document is final and no confidentiality claim accompanies information which is submitted to the Party requesting it, the information may be made available to the public without further notice to the originating Party.

XXII. RESOLUTION OF DISPUTES

Except as specifically set forth elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Part shall apply.

All Parties to this Agreement shall make reasonable efforts to informally resolve disputes at the Project Manager or immediate supervisor level. If

resolution cannot be achieved informally, the procedures of this Part shall be implemented to resolve the dispute.

A. Within thirty (30) days after: (1) the period established for review of a draft final primary document pursuant to Part XII (Review and Comment on Draft Documents) of this Agreement; or (2) any action which leads to or generates a dispute, the disputing Party shall submit to the other Party a written statement of dispute setting forth the nature of the dispute, the work affected by the dispute, the disputing Party's position with respect to the dispute and the information the disputing Party is relying upon to support its position.

B. Prior to any Party's issuance of a written statement of dispute, the disputing Party shall engage the other Party in informal dispute resolution among the Project Managers and/or their immediate supervisors. During this informal dispute resolution period the Parties shall meet or confer by telephone as many times as are necessary to discuss and attempt resolution of the dispute.

C. If agreement cannot be reached on any issue within the informal dispute resolution period, at any time the disputing Party may forward the written statement of dispute to the Dispute Resolution Committee (DRC) thereby elevating the dispute to the DRC for resolution.

D. The DRC will serve as a forum for resolution of disputes for which agreement has not been reached through informal dispute resolution. The

Parties shall each designate one individual and an alternate to serve on the DRC. The individuals designated to serve on the DRC shall be employed at the policy level (SES or equivalent) or be delegated the authority to participate on the DRC for the purposes of dispute resolution under this Agreement. The U.S. EPA representative on the DRC is the Waste Management Division Director of U.S. EPA's Region V. U.S. DOE's designated member is the U.S. DOE Dayton Area Office Manager. Written notice of any delegation of authority from a Party's designated representative on the DRC shall be provided to all other Parties.

E. Following elevation of a dispute to the DRC, the DRC shall have twenty-one (21) days to unanimously resolve the dispute and issue a written decision. If the DRC is unable to unanimously resolve the dispute within this twenty-one (21) day period the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution.

F. The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC. The U.S. EPA representative on the SEC is the Regional Administrator of U.S. EPA's Region V. U.S. DOE's representative on the SEC is the U.S. DOE Albuquerque Operations Manager. The SEC members shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached within twenty-one (21) days, U.S. EPA's Regional Administrator shall issue a written position on the dispute. U.S. DOE may, within twenty-one (21) days of the Regional Administrator's issuance of U.S. EPA's position, issue a written notice elevating the dispute

to the Administrator of U.S. EPA for resolution in accordance with all applicable laws and procedures. In the event that U.S. DOE elects not to elevate the dispute to the Administrator within the designated twenty-one (21) day escalation period, U.S. DOE shall be deemed to have agreed with the Regional Administrator's written position with respect to the dispute.

G. Upon escalation of a dispute to the Administrator of U.S. EPA pursuant to Subpart F, the Administrator will review and resolve the dispute within twenty-one (21) days. Upon request, and prior to resolving the dispute, the U.S. EPA Administrator shall meet and confer with the Secretary of U.S. DOE to discuss the issue(s) under dispute. Upon resolution, the Administrator shall provide U.S. DOE with a written final decision setting forth resolution of the dispute.

H. The pendency of any dispute under this Part shall not affect U.S. DOE's responsibility for timely performance of the work required by this Agreement, except that the time period for completion of work affected by such dispute shall be extended for a period of time usually not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified herein. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.

I. When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if the Waste Management Division Director for U.S. EPA's Region V requests, in writing, that work related to the

dispute be stopped because, in U.S. EPA's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a substantial adverse effect on the remedy selection or implementation process. To the extent possible, U.S. EPA shall give U.S. DOE prior notification that a work stoppage request is forthcoming. After stoppage of work, if U.S. DOE believes that the work stoppage is inappropriate or may have potential significant adverse impacts, U.S. DOE may meet or confer by telephone with the Division Director to discuss the work stoppage. Following this meeting or conference, and further consideration of the issues, the Division Director will issue, in writing, a final decision with respect to the work stoppage. The final written decision of the Division Director may immediately be subjected to formal dispute resolution. Such dispute may be brought directly to either the DRC or the SEC, at the discretion of U.S. DOE.

J. Within twenty-one (21) days of resolution of a dispute pursuant to the procedures specified in this Part, U.S. DOE shall incorporate the resolution and final determination into the appropriate plan, schedule or procedures.

K. Resolution of a dispute pursuant to this Part of the Agreement constitutes a final resolution of any dispute arising under this Agreement. U.S. DOE shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Part of this Agreement.

XXIII. ENFORCEABILITY

A. The Parties agree that:

1. Upon the effective date of this Agreement, any standard, regulation, condition, requirement or order which has become effective under CERCLA and is incorporated into this Agreement is enforceable by any person pursuant to Section 310 of CERCLA, and any violation of such standard, regulation, condition, requirement or order will be subject to civil penalties under Sections 310(c) and 109 of CERCLA; and

2. All timetables or deadlines associated with the development, implementation and completion of the RI/FS and subsequent remedial design and remedial action shall be enforceable by any person pursuant to Section 310 of CERCLA, and any violation of such timetables or deadlines will be subject to civil penalties under Sections 310(c) and 109 of CERCLA; and

3. All terms and conditions of this Agreement which relate to interim or final remedial actions, including corresponding timetables, deadlines or schedules, and all work associated with the interim or final remedial actions, shall be enforceable by any person pursuant to Section 310(c) of CERCLA, and any violation of such terms or conditions will be subject to civil penalties under Sections 310(c) and 109 of CERCLA; and

4. Any final resolution of a dispute pursuant to Part XXII of this Agreement which establishes a term, condition, timetable, deadline or schedule shall be enforceable by any person pursuant to Section 310(c) of CERCLA, and any violation of such term, condition, timetable, deadline or schedule will be subject to civil penalties under Sections 310(c) and 109 of CERCLA.

B. Nothing in this Agreement shall be construed as authorizing any person to seek judicial review of any action or work where review is barred by any provision of CERCLA, including Section 113(h) of CERCLA.

C. The Parties agree that all Parties shall have the right to enforce the terms of this Agreement.

XXIV. STIPULATED PENALTIES

A. In the event that U.S. DOE fails to submit a primary document to U.S. EPA pursuant to the appropriate timetable or deadline in accordance with the requirements of this Agreement, or fails to comply with a term or condition of this Agreement which relates to an interim or final remedial action, U.S. EPA may assess a stipulated penalty against U.S. DOE. A stipulated penalty may be assessed in an amount not to exceed $5,000 for the first week (or part thereof), and $10,000 for each additional week (or part thereof) for which a failure set forth in this Paragraph occurs.

B. Upon determining that U.S. DOE has failed in a manner set forth in Paragraph A, U.S. EPA shall so notify U.S. DOE in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, U.S. DOE shall have fifteen (15) days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur. U.S. DOE shall not be liable for the stipulated penalty assessed by U.S. EPA if the failure is determined, through the dispute resolution process, not to have occurred. No assessment of a stipulated penalty shall be final until the conclusion of dispute resolution procedures related to the assessment of the stipulated penalty.

C. The annual reports required by Section 120(e)(5) of CERCLA shall include, with respect to each final assessment of a stipulated penalty against U.S. DOE under this Agreement, each of the following:

1. The facility responsible for the failure;
2. A statement of the facts and circumstances giving rise to the failure;
3. A statement of any administrative or other corrective action taken at the relevant facility, or a statement of why such measures were determined to be inappropriate;
4. A statement of any additional action taken by or at the facility to prevent recurrence of the same type of failure; and
5. The total dollar amount of the stipulated penalty assessed for the particular failure.

D. Stipulated penalties assessed pursuant to this Part shall be payable to the Hazardous Substances Response Trust Fund from funds authorized and appropriated for that specific purpose.

E. In no event shall this Part give rise to a stipulated penalty in excess of the amount set forth in Section 109 of CERCLA.

F. This Part shall not affect U.S. DOE's ability to obtain an extension of a timetable, deadline or schedule pursuant to Part XXV of this Agreement.

G. Nothing in this Agreement shall be construed to render any officer or employee of U.S. DOE personally liable for the payment of any stipulated penalty assessed pursuant to this Part.

XXV. EXTENSIONS

A. Either a timetable and deadline or a schedule shall be extended upon receipt of a timely request for extension and when good cause exists for the requested extension. Any request for extension by U.S. DOE shall be submitted in writing and shall specify:

1. The timetable and deadline or the schedule that is sought to be extended;
2. The length of the extension sought;
3. The good cause(s) for the extension; and

4. Any related timetable and deadline or schedule that would be affected if the extension were granted.

B. Good cause exists for an extension when sought in regard to:

1. An event of force majeure;

2. A delay caused by another party's failure to meet any requirement of this Agreement;

3. A delay caused by the good faith invocation of dispute resolution or the initiation of judicial action;

4. A delay caused, or which is likely to be caused, by the grant of an extension in regard to another timetable and deadline or schedule;

5. A delay caused by a stoppage of work under Part XV of this Agreement; and

6. Any other event or series of events mutually agreed to by the Parties as constituting good cause.

C. Absent agreement of the Parties with respect to the existence of good cause, U.S. DOE may seek and obtain a determination through the dispute resolution process that good cause exists.

D. Within seven (7) days of receipt of a request for an extension of a timetable and deadline or a schedule, U.S. EPA shall advise U.S. DOE in writing of its position on the request. Any failure by U.S. EPA to respond within the seven (7) day period shall be deemed to constitute concurrence with the request for extension. If U.S. EPA does not concur with the

requested extension, it shall include in its statement of nonconcurrence an explanation of the basis for its position.

E. If there is consensus among the Parties that the requested extension is warranted, U.S. DOE shall extend the affected timetable and deadline or schedule accordingly. If there is no consensus among the Parties as to whether all or part of the requested extension is warranted, the timetable and deadline or schedule shall not be extended except in accordance with determination resulting from the dispute resolution process.

F. Within seven (7) days of receipt of a statement of nonconcurrence with the requested extension, U.S. DOE may invoke dispute resolution.

G. A timely and good faith request for an extension shall toll any assessment of stipulated penalties or application for judicial enforcement of the affected timetable and deadline or schedule until a decision is reached on whether the requested extension will be approved. If dispute resolution is invoked and the requested extension is denied, stipulated penalties may be assessed and may accrue from the date of the original timetable, deadline or schedule. Following the grant of an extension, an assessment of stipulated penalties or an application for judicial enforcement may be sought only to compel compliance with the timetable and deadline or schedule as most recently extended.

XXVI. FORCE MAJEURE

A. A Force Majeure shall mean any event arising from causes beyond the control of a Party that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to: acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation; restraint by court order or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits or licenses due to action or inaction of any governmental agency or authority other than U.S. DOE; delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence; and insufficient availability of appropriate funds, if U.S. DOE shall have made timely request for such funds as part of the budgetary process as set forth in Part XXVII (Funding) of this Agreement. A Force Majeure shall also include any strike or other labor dispute, whether or not within the control of the Parties affected thereby. Force Majeure shall not include increased costs or expenses of Response Actions, whether or not anticipated at the time such Response Actions were initiated.

B. If any event(s) occurs or has occurred that may delay the performance of any obligation under this Agreement, whether or not caused by a Force Majeure event, U.S. DOE shall notify by telephone the Project Manager or, in

his or her absence, the Director of the Waste Management Division, U.S. EPA Region V, within forty-eight (48) hours of when U.S. DOE first knew or should have known that the event(s) might cause a delay. Within twenty (20) days of the event(s) which U.S. DOE contends is responsible for the delay, U.S. DOE shall supply to U.S. EPA in writing the reason(s) for and anticipated duration of such delay, the measures taken and to be taken by U.S. DOE to prevent or minimize the delay, and the timetable for the implementation of such measures. Failure to give written explanation in a timely manner shall constitute a waiver of any claim of Force Majeure.

XXVII. FUNDING

It is the expectation of the Parties to this Agreement that all obligations of U.S. DOE arising under this Agreement will be fully funded. U.S. DOE shall take all necessary steps and make efforts to obtain timely funding to meet its obligations under this Agreement.

In accordance with Section 120(e)(5)(B) of CERCLA, 42 U.S.C. Section 9620(e)(5)(B), U.S. DOE shall include in its annual report to Congress the specific cost estimates and budgetary proposals associated with the implementation of this Agreement.

Any requirement for the payment or obligation of funds, including stipulated penalties, by U.S. DOE established by the terms of this Agreement shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in

violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted. If appropriated funds are not available to fulfill U.S. DOE's obligations under this Agreement, U.S. EPA reserves the right to initiate any other action which would be appropriate absent this Agreement.

The Parties recognize that U.S. EPA must possess adequate resources to meet its commitments established by this Agreement. So that activities to be performed pursuant to this Agreement may proceed, U.S. EPA agrees to reprogram existing FY90 resources to fulfill its FY90 commitments established by this Agreement. The Parties agree that during FY90, the Parties will explore any possible alternatives that may be available to ensure that adequate resources are available to U.S. EPA to fulfill its commitments established by this Agreement.

Notwithstanding any other provision of this Agreement, in the event that U.S. EPA determines that adequate resources are not available to meet any post-FY90 commitments established by this Agreement, U.S. EPA may terminate this Agreement by written notice to DOE.

U.S. EPA reserves any rights it may have to seek or obtain reimbursement of any funds expended by U.S. EPA at the Mound Site to the extent authorized by CERCLA; nothing herein shall prejudice U.S. EPA's ability to exercise any right to reimbursement provided for by CERCLA.

XXVIII. PROPERTY TRANSFER

A. Within thirty days after the effective date of Agreement, DOE shall record a copy of this Agreement with the Recorder's Office, Montgomery County, State of Ohio.

B. In the event DOE determines to enter into any contract for the sale or transfer of any of the Site, DOE will comply with the requirements of CERCLA Section 120(h), 42 U.S.C. Section 960(h), in effectuating that sale or transfer, including all notice requirements. In addition, DOE shall include notice of this Agreement to any subsequent owner of the site, in whole or in part, and shall notify U.S. EPA and Ohio EPA of any such sale or transfer at least ninety (90) days prior to such transfer. No change in ownership of the Site or any portion thereof, or notice pursuant to Section 120(h)(3)(b) of CERCLA, 42 U.S.C. Section 960(h)(3)(b), shall relieve DOE of its obligation to perform pursuant to this Agreement. No change of ownership of the Site or any portion thereof shall be consummated by DOE without provision for continued maintenance of any containment system, treatment system, monitoring system, or other response action(s) installed or implemented pursuant to this Agreement.

XXIX. OTHER CLAIMS

Except as provided in Part XXXVI, nothing in this Agreement shall constitute or be construed as a bar or release from any claim, cause of action, or demand in law or equity by or against any person, firm, partnership, or corporation not a signatory to this Agreement for any

liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, contaminants or pollutants, found at, taken to, or taken from the Mound Plant. U.S. EPA shall not be held as a party to any contract entered into by U.S. DOE to implement the requirements of this Agreement. This Agreement shall not restrict U.S. EPA from taking any legal or response action for any matter not specified as a part of this Agreement.

XXX. PUBLIC PARTICIPATION

A. The Parties agree that this Agreement and any subsequent proposed remedial action alternative(s) and subsequent plan(s) for remedial action at the Site arising out of this Agreement shall comply with the administrative record and public participation requirements of CERCLA/SARA, including Section 117 of SARA, the NCP, U.S. EPA guidances on public participation and administrative records.

B. U.S. DOE shall develop and implement a Community Relations Plan (CRP) which responds to the need for an interactive relationship with all interested community elements, both on and off the Site regarding activities and elements of work undertaken by U.S. DOE. U.S. DOE agrees to develop and implement the CRP in a manner consistent with Section 117 of SARA, the NCP, U.S. EPA guidelines set forth in U.S. EPA's Community Relations Handbook, and any modifications thereto.

The CRP is subject to the process for primary reports under Part XII.

C. The public participation requirements of this Agreement shall be implemented so as to meet the public participation requirements applicable to RCRA permits under 40 CFR Part 124 and Section 7004 of RCRA (42 U.S.C. Section 6974) as well as CERCLA/SARA.

D. Any Party issuing a formal press release to the media regarding any of the work required by this Agreement shall advise the other Party of such a press release and the contents thereof, at least forty-eight (48) hours before the issuance of such press release and of any subsequent changes prior to the release. The Parties agree to consider each other's comments and attempt to address them prior to issuance. Nothing in this section shall be construed as an agreement to negotiate or in any way restrict the content of U.S. EPA press releases.

E. U.S. DOE agrees that it shall establish and maintain an administrative record at or near the Mound Plant in accordance with Section 113(k) of CERCLA/SARA. The administrative record shall be established and maintained in accordance with current and future U.S. EPA policy and guidelines. A copy of each document placed in the administrative record will be provided to the U.S. EPA. The administrative record developed by U.S. DOE shall be updated and supplied to U.S. EPA on at least a quarterly basis. An index of documents in the administrative record will accompany each update of the administrative record.

F. U.S. DOE agrees it shall follow the public participation requirements of CERCLA/SARA Section 113(k) and comply with any guidance and/or regulations promulgated by U.S. EPA with respect to such Section.

G. All plans and activities related to Community Relations and Public Participation undertaken by U.S. DOE shall be subject to the Consultation Process set forth in Part XII of this Agreement. In the case of a dispute, Part XXII of this Agreement may be invoked.

XXXI. AMENDMENT OF AGREEMENT

This Agreement may be amended by a written agreement between U.S. DOE and U.S. EPA.

XXXII. PUBLIC COMMENT ON THIS AGREEMENT

A. Within fifteen (15) days of the date of the acceptance of this Agreement, U.S. EPA shall announce the availability of this Agreement to the public for review and comment. U.S. EPA shall accept comments from the public for a period of thirty (30) days after such announcement. At the end of the comment period, U.S. EPA shall review all such comments and shall either:

1. Determine that the Agreement should be made effective in its present form, in which case U.S. DOE shall be so notified in writing, and the Agreement shall become effective on the date said notice is issued; or

2. Determine that modification of the Agreement is necessary, in which case U.S. DOE will be forwarded a revised Agreement which includes all required changes to the Agreement.

B. In the event of significant revision or public comment, notice procedures of Section 117 of SARA shall be followed and a responsiveness summary shall be published by the U.S. EPA.

C. In the event that modification of the Agreement is determined by U.S. EPA to be necessary pursuant to Subpart A, 2., above, within twenty (20) days of receipt of the revised Agreement U.S. DOE reserves the right to withdraw from the Agreement.

If U.S. DOE does not provide U.S. EPA with written notice of withdrawal from the Agreement within such twenty (20) day period, the Agreement, as modified, shall automatically become effective on the twenty-first (21) day, and U.S. EPA shall issue a notice to U.S. DOE to that effect.

XXXIII. TERMINATION

The provisions of this Agreement shall be deemed satisfied and terminated upon receipt by U.S. DOE ~~of~~ written notice from U.S. EPA that U.S. DOE has demonstrated, to the satisfaction of the U.S. EPA, that all the terms of this Agreement have been completed.

XXXIV. EFFECTIVE DATE

This Agreement is effective upon issuance of a notice to U.S. DOE by U.S. EPA following implementation of Part XXXII (Public Comment on This Agreement).

XXXV. COVENANT NOT TO SUE/RESERVATION OF RIGHTS

In consideration of U.S. DOE's compliance with this Agreement and based on the information known to the Parties on the effective date of this Agreement, U.S. EPA agrees that compliance with this Agreement shall stand in lieu of any civil remedies, including administrative, legal and equitable, against U.S. DOE, its employees, contractors, agents or their employees available under current law to U.S. EPA regarding the currently known releases or threatened releases of hazardous substances, pollutants or contaminants, and hazardous constituents at the Site which are the subject of the RI/FS(s) and which will be addressed by the remedial action(s) provided for under this Agreement. Nothing in this Agreement shall preclude U.S. EPA from exercising any administrative, legal or equitable remedies available to require additional response action by U.S. DOE in the event that: (1) conditions previously unknown or undetected by U.S. EPA arise or are discovered at the Site; or (2) U.S. EPA receives additional information not previously available concerning the premises which it employed in reaching this Agreement, and the implementation of the requirements of this Agreement is no longer protective of human health or the environment. Except in the case on an emergency, the decision by U.S. EPA to require additional response action by U.S. DOE shall be subject to Part XIII (Additional Work or Modification To Work) of this Agreement.

XXXVI. NOTICE OF ACTION

U.S. EPA has given notice of issuance of this Agreement to the State of Ohio.

XXXVII. ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT PLAN

DOE is preparing an Environmental Restoration and Waste Management Plan (5-Year Plan), that will identify, integrate and prioritize compliance and cleanup activities at all DOE nuclear facilities and sites, and provide a consistent basis for DOE to address environmental requirements and develop and support its budget requests. The 5-Year Plan will be updated annually to incorporate any changes that occur in the program, including changes due to the following factors: the availability of Congressional funding; the completion or modification of Federal Facility Agreements; application of a national prioritization system to environmental restoration and waste management activities conducted under the 5-Year Plan; conditions determined as the result of assessment and characterization activities at DOE facilities and sites; and new or amended regulatory requirements.

The activities and related milestones in the 5-Year Plan shall be consistent with provisions, including requirements and schedules, of this Agreement; it is the intent of DOE that the 5-Year Plan shall be drafted to ensure that the provisions of this Agreement are incorporated into the DOE planning and budget process. Nothing in the 5-Year Plan shall be construed to affect the provisions of this Agreement. The parties recognize that application of the 5-Year Plan's national prioritization system could result in a proposed implementation schedule for the environmental restoration and

waste management activities that is different than the schedules developed pursuant to this Agreement. In that event, DOE may request, in writing, amendment to this Agreement or the extension of deadlines established by this Agreement. Where necessary, DOE may also invoke the appropriate dispute resolution provisions of this Agreement. Pending resolution of any dispute, the schedules developed pursuant to this Agreement shall remain enforceable in accordance with the terms hereof. Any resulting amendments or modifications to this Agreement will be incorporated, as necessary, in the annual updates to the 5-Year Plan.

IT IS SO AGREED:

By: _____ 8/6/90

Bruce G. Twining, Manager
Albuquerque Operations Office
U.S. Department of Energy

Date

By: _____ June 25, 1990

David A. Ullrich, Acting Director
Waste Management Division
U.S. Environmental Protection Agency
Region V

Date

By: _____ June 29, 1990.

Valdas V. Adamkus
Regional Administrator
U.S. Environmental Protection Agency
Region V

Date

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Attachment I

STATEMENT OF WORK FOR A REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) AT DOE MOUND PLANT

INTRODUCTION

DOE shall develop and submit a Work Plan proposing work sufficient to perform a Remedial Investigation (RI) and a Feasibility Study (FS) of the Site (a defined term). The objectives of the RI work shall be to characterize the Site for all hazardous substances that potentially pose a threat to human health and the environment. The RI work shall be sufficient to adequately address and define Federal and State ARARs, To Be Considered (TBC) information, and remedial action alternatives necessary to attain clean-up criteria. The FS work shall be sufficient to develop and evaluate remedial action alternatives for each interim or final remedial action and/or identified operable unit in order to recommend those alternative(s) which will effectively mitigate actual or potential threat(s) to human health or the environment resulting from the release or potential release of hazardous substances at or originating from the Mound Plant.

All RI/FS work shall adhere to the procedures and terminology identified in U.S. EPA's October 1988 Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive 9355.3), and/or other guidance documents as provided. All parties recognize that the future final version may require changes to plans to be consistent with the then current guidance. It is not intended that finished reports, previously approved by U.S. EPA under this agreement, be modified to be consistent with changes in guidelines. However, U.S. EPA may require supplemental documents (including letter reports) and/or work to allow decision making to occur in a manner consistent with the then current guidelines.

DOE has performed and is performing studies using data gathering methods not reviewed and not overseen by the U.S. EPA. Though U.S. EPA recognizes the value of this work for indicating the course of future work, U.S. EPA cannot accept this data without their further verification as sufficient for determining the appropriate remedy or excluding potential areas of concern from further consideration. The RI/FS Work Plan shall provide for investigative tasks sufficient to confirm results using U.S. EPA approved methods.

Upon request by U.S. EPA, DOE shall make available and/or provide copies of any analyses of on-site or off-site samples of groundwater, soil, air, and other environmental media performed by or on behalf of DOE and any document related to any of the analyses.

It is intended that the Site be addressed through remedial action at the time sufficient information is available to perform a Risk Assessment/ Endangerment Assessment, if in the opinion of the U.S. EPA there is

no advantage to waiting for the completion of a Site-wide RI/FS report. Such actions will be performed as Interim Remedial Actions, Operable Units, Removals, or Remedial Actions, as determined by the U.S. EPA.

Throughout this Statement of Work (SOW), specific mention of a potential area of concern or potential release site means only that specific needs are currently known for the referenced area or release. Lack of mention of any area (named or unnamed) does not indicate that information is not needed for that area but rather that no special or area-specific requirements are known at this time.

REMEDIAL INVESTIGATION

PURPOSE

The purpose of the RI shall be to determine the nature and extent of releases or potential releases of hazardous substances at or emanating from the Mound Plant and to gather all necessary data to support the FS and the baseline Risk Assessment (RA). DOE shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI.

This statement of work is intended to foster timely, concise submissions by DOE and is intended to be consistent with both CERCLA Remedial Investigations (RI) and RCRA Facility Investigations (RFI). DOE shall use CERCLA's RI/FS format, procedures and terminology in the execution of the investigation and in preparation of required deliverables. All RCRA corrective action requirements applicable to solid waste management units or active storage, treatment, or disposal facilities present at the Mound Plant shall be incorporated into the CERCLA RI/FS format under the appropriate section(s).

It is recognized that the RI and FS are interdependent and that it will be necessary to conduct portions of the RI and FS concurrently and in an iterative manner.

1.0 SCOPING

DOE shall collect and analyze existing data so as to develop a conceptual Site model that can be used to assess both the nature and the extent of contamination and to identify potential exposure pathways and potential human and environmental receptors. This data shall include but not be limited to:

1.1 Description of Current Conditions

DOE shall submit for U.S. EPA approval a report providing the background information pertinent to the Site as set forth below. The data gathered during any previous investigations or inspections and other relevant data shall be included. Available references shall be used as appropriate.

1.1.1 Site Background

DOE shall prepare a summary of the regional location, pertinent area boundary features, and physical geography at and near the Site. The summary shall include characteristics such as surface hydrology, hydrogeology, and geology, and define the total area of the Site and the general nature of the problem, particularly the history relative to the use of the Site for hazardous substance disposal. DOE shall assemble and discuss background information on land use, natural resources and climatology. The Site background may reference applicable existing reports. DOE shall, at a minimum, provide the following:

A. Map(s) depicting the following:

1. General geographic location;

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

3. Topography and surface drainage with appropriate contour interval and scale depicting all waterways, wetlands, flood plains, water features, drainage patterns, and surface water containment areas;

4. All tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

5. All known active or past hazardous substance treatment, storage or disposal areas and the dates of their operation;

6. All known past and present product and waste underground tanks or piping;

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

8. The location of all wells. These wells shall be clearly labeled and ground and top of casing elevations and construction details shall be included (elevations and construction details may be included as an attachment). DOE shall determine whether any of the identified wells are currently being used, particularly as a source of potable water.

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

B. A history and description of ownership and operation (past and current), including: hazardous substance generation, treatment, storage and disposal activities at the Plant;

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

D. A summary of past and present permits requested and/or received, any enforcement actions and their subsequent responses and a list of documents and studies prepared for the Site;

E. A summary of known or suspected source areas and existing contamination referencing studies or sampling events leading to the confirmation of contamination;

F. A summary of any previous response actions conducted by either local, state, federal, or private parties, including the Plant inspection and other technical reports, and their results; and

G. A legal description of the Mound Plant properties and properties in and around the Mound Plant.

1.1.2 Nature and Extent of Contamination

DOE shall prepare a summary of the actual and potential Site health and environmental effects for inclusion in the report described in 1.1 above. The summary shall include, but not be limited to, the types, physical states, and amounts of the hazardous substances, the existence and conditions of drums, affected media and pathways of exposure, releases such as leachate or runoff, and any human and/or environmental exposure. Emphasis should be placed on describing the threat or potential threat to public health and the environment. Existing information should be referenced to the extent possible, with source references to be provided where existing data is used.

The summary shall include:

A. All possible sources of contamination, including identification of all regulated units, solid waste management units, and any other suspected areas of contamination. For each area, the following shall be identified:

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

2. Quantities of hazardous substances;

3. Hazardous substances to the extent known; and

4. Areas where additional information is necessary.

B. An assessment and description of the existing degree and extent of hazardous substance contamination for the Site, including:

1. Available monitoring data for all media sampled and information on locations and levels of contamination at the Site;

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

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

1.1.3 History and Implementation of Interim Remedial Actions/Interim Measures

DOE shall document interim measures which were or are being undertaken at the Site. Documentation shall include:

A. Objectives of the interim measures, including how the measure is mitigating a potential threat to human health and the environment and is consistent with and integrated into any long term solution at the Site;

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

C. Schedules for design, construction and monitoring; and

D. Schedules for and content of progress reports.

1.1.4 Annotated Bibliography

DOE shall provide an annotated bibliography of existing reports for the Site, including reports relevant to the RI/FS. Upon request, DOE shall provide copies of the reports to U.S. EPA.

1.2 Preinvestigation Evaluation of Remedial Action Technologies

Once the existing Site information has been analyzed, DOE shall prepare a Preinvestigation Evaluation report for the Site and for any identified Operable Units. The report shall identify potential remedial action objectives for each contaminated medium, a preliminary range of potential remedial technologies and associated process options which have application to Site problems, and broadly defined remedial alternatives. DOE shall also specify data that will need to be collected in order to evaluate

identified technologies and process options. A preliminary identification of Federal and State ARARs and TBC information which may have application to the technologies and process options under consideration shall also be included.

The remedial action objectives, technologies, process options and alternatives shall be based upon the initially identified potential routes of exposure and associated receptors. The purpose of the Preinvestigation Evaluation shall be to ensure that 1) the data needed to evaluate potential remedial technologies, process options and alternatives during the FS are collected during the RI, and 2) Federal and State ARARs and TBC information which may influence Site remediation have been considered. Due to the iterative nature of the RI/FS process, Federal and State ARARs and TBC identification will continue throughout the process.

A. Technologies that may be appropriate for treating or disposing of wastes shall be identified, along with sources of literature on the technologies' effectiveness, applications, and cost. At a minimum, DOE shall refer to U.S. EPA's Technology Screening Guide for Treatment of CERCLA Soils and Sludges (September 1988). Innovative technologies and resource recovery options are to be included if they appear feasible.

B. DOE shall develop and include within the Preinvestigation Evaluation Report a preliminary list of broadly defined remedial alternatives which reflect the goal of preserving a range of alternatives in which treatment that significantly reduces the toxicity, mobility, or volume of waste is a principal element; one or more alternatives that involve containment with little or no treatment; and a no action alternative.

C. For those remedial alternatives involving treatment, DOE shall evaluate the need for treatability studies as early in the RI/FS process as possible. The need for such studies shall be included in the Preinvestigation Evaluation Report.

1.2.1 Limited Additional Studies to Facilitate Project Scoping

DOE may propose limited studies as interim scoping tasks for those areas of the Site where the understanding of potential contamination is poor and the collection of site-specific data would enhance the scoping effort. Such studies shall be limited to the collection of readily obtainable data where results can be achieved in a short time, and shall be undertaken prior to or concurrent with the development of the RI/FS Work Plan. Based on the results of these studies, potential release sites will either be eliminated from further investigation or carried forward into the RI/FS. This evaluation will be documented in the RI/FS Work Plan. The need to conduct limited additional studies must be concurred upon by U.S. EPA. Work plans for such work must be approved by U.S. EPA prior to implementation.

2.2 RI/FS Work Plan

The Work Plan shall document the decisions and evaluations made during the scoping process and detail the specific RI investigative tasks and FS evaluation procedures which will be utilized. The Work Plan shall provide schedules fixed in real time for accomplishing the requirements of the RI/FS, Proposed Plan, public participation, and Record of Decision (ROD). The Work Plan shall be submitted to U.S. EPA for review and approval by April 13, 1990. Following U.S. EPA approval of the RI/FS Work Plan and supporting documents, DOE shall implement the work described therein. The Work Plan shall at a minimum include the following elements which are further described in Sections 3 through 8:

A. Introduction

A general explanation of the reasons for the RI/FS and the presentation of the expected results or goals of the RI/FS process;

B. Site Background and Physical Setting

A description of the current understanding of the physical setting of the Site, the Site history, and the existing information on the condition of the Site;

C. Initial Evaluation

A presentation of the conceptual Site model developed during scoping, including descriptions of the potential migration and exposure pathways and the preliminary assessment of human health and environmental impacts;

D. Work Plan Rationale

A documentation of the data requirements for the risk and endangerment assessments and the alternatives evaluation based on the Data Quality Objectives, and the work plan approach illustrating how the activities will satisfy data needs; and

E. RI/FS Tasks

A presentation of the tasks to be performed during the RI/FS which incorporates RI Site characterization tasks identified in the SAP, the data evaluation methods identified during scoping, and a preliminary determination of the tasks to be conducted following Site characterization. At a minimum, RI/FS tasks shall include the following:

1. Project Planning (Scoping);
2. Community Relations;
3. Field Investigation (to include provisions for collecting, storing, testing and disposing of project generated wastes);

1.2.2 Identification of Data Needs and Data Usage

Based on the objectives of the RI, the review of existing information, and the development of the initial alternatives, DOE shall identify data which need to be collected during the RI. At a minimum, data shall be collected which will:

A. Define source areas of contamination;

B. Define the nature and vertical and horizontal extent of contamination;

C. Define potential pathways of contaminant migration;

D. Define potential receptors;

E. Allow a determination of whether and to what extent a threat to human health or the environment exists (sufficient to support the Risk and Endangerment Assessments); and

F. Allow development and evaluation of the remedial action alternatives.

The identification of data needs shall be coordinated with the expected uses for the data. DOE shall identify the intended uses for the data and its adequacy in meeting the objectives of the RI/FS.

DOE shall submit the Preinvestigation Evaluation Report as a Technical Memorandum to U.S. EPA for review and comment prior to beginning RI field work. Following U.S. EPA review and comment, the Preinvestigation Evaluation Report is to be incorporated into the RI/FS Work Plan in order to document the RI/FS project scoping.

2.0 PROJECT MANAGEMENT PLAN, RI/FS WORK PLAN AND SUPPORTING DOCUMENTS

Prior to starting the RI, DOE shall concurrently develop and submit for U.S. EPA review and approval a Project Management Plan, RI/FS Work Plan, Sampling and Analysis Plan (SAP), Health and Safety Plan (HSP) and Community Relations Plan (CRP) for the Site and, as appropriate, for any identified Operable Units.

2.1 Project Management Plan

DOE shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, and personnel. The Project Management Plan will also include a description of qualifications of personnel directing or performing the RI, including contractor personnel. This plan shall also document the overall management approach to the RI, including project file requirements and project-related progress reporting procedures and documents. The Project Management Plan may be incorporated into the RI/FS Work Plan.

4. Sample Analysis/Validation;
5. Data Evaluation;
6. Assessment of Risks;
7. Treatability Study/Pilot Testing;
8. Remedial Investigation Reports;
9. Remedial Alternatives Development/Screening;
10. Detailed Analysis of Remedial Alternatives;
11. Feasibility Study (or RI/FS) Reports;
12. Post RI/FS Support; and
13. Miscellaneous Support.

2.3 Sampling and Analysis Plan (SAP)

The SAP shall document all monitoring procedures: sampling, field measurements and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. The SAP shall consist of two basic parts: (1) the Quality Assurance Project Plan (QAPP); and (2) the Field Sampling Plan (FSP).

2.3.1 Quality Assurance Project Plan (QAPP)

The QAPP for all field investigation activities and laboratory analyses shall be developed in accordance with U.S. EPA guidelines, employing the 16 elements listed below:

1. Title Page;
2. Table of Contents;
3. Project Description;
4. Project Organization and Responsibilities;
5. QA Objectives for Measurement;
6. Sampling Procedures;
7. Sample Custody;
8. Calibration Procedures;
9. Analytical Procedures;
10. Data Reduction, Validation, and Reporting;
11. Internal Quality Control;
12. Performance and System Audits;
13. Preventative Maintenance;
14. Data Assessment Procedures;
15. Corrective Actions; and
16. Quality Assurance Reports.

The QAPP shall describe the policy, organization, functional activities, and quality assurance and quality control protocols necessary to achieve Data Quality Objectives dictated by the intended use of the data.

2.3.2 Field Sampling Plan (FSP)

The FSP shall provide guidance for all proposed fieldwork by defining in detail the sampling and data-gathering methods to be employed. The FSP consists of the six elements listed below:

1. Site background;
2. Sampling objectives;
3. Sampling location and frequency;
4. Sample designation;
5. Sampling equipment and procedures; and
6. Sample handling and analysis.

The FSP must be written so that a sampling team unfamiliar with the Site would be able to gather the samples and field information required.

2.4 Health and Safety Plan (HSP)

DOE shall prepare a Health and Safety Plan which includes each of the elements listed below as appropriate:

1. Site health and safety officer and key personnel and alternates responsible for Site health and safety;

2. Health and safety risk analyses for existing Site conditions and for each task and operation;

3. Employee training assignments;

4. Descriptions of personal protective equipment to be used by employees for each of the Site tasks and operations;

5. Medical surveillance requirements;

6. Descriptions of the frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used;

7. Site control measures;

8. Decontamination procedures;

9. Standard operating procedures for the Site;

10. Contingency plans which meet the requirements of 29 CFR 1910.120(l)(l) and (l)(2); and

11. Entry procedures for confined spaces.

The specific information required in the HSP is listed in 29 CFR 1910.120.

2.5 Community Relations Plan (CRP)

DOE shall develop a Community Relations Plan for the Site for dissemination of information to the public regarding investigation activities and results. The CRP shall be based on interviews with interested people in the community and will provide the guidelines for future community relations at the Site. The CRP shall follow U.S. EPA's guidance Community Relations in Superfund (U.S. EPA, Interim, June 1988) and shall be submitted to U.S. EPA for review and approval.

At a minimum, the CRP must provide for:

A. Establishment of conveniently located community information repository(ies), one of which will house the administrative record;

B. A mailing list;

C. Preparation and dissemination of news releases, fact sheets, and exhibits and materials designed to apprise the community of current or proposed activities;

D. Arrangements for conducting formal and informal public meetings, project review meetings, and other meetings as necessary;

E. A summary of public comments on the RI/FS reports and proposed plans along with responses to those comments; and

F. The means of coordination between the parties to this agreement when disseminating public information (e.g., prior notice, interagency review, etc.).

DOE shall perform the specific community relations requirements for each phase of the RI/FS as outlined in Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (U.S. EPA, Interim Final, October 1988).

3.0 INVESTIGATION OF SITE PHYSICAL CHARACTERISTICS

DOE shall collect data on the physical characteristics of the Site and surrounding areas to the extent necessary to define potential transport pathways and receptor populations and to provide sufficient engineering data for development and screening of remedial action alternatives. Needed information can be categorized as surface features (including natural and artificial features), geology, soils, surface water hydrology, hydrogeology, meteorology, human populations, land use(s) and ecology.

3.1 Surface Features

Surface features may be described using aerial photography, surveying and mapping, and Site inspection. These features are to include but are not limited to:

1. Surface disposal areas;
2. Plant dimensions and locations (buildings, tanks, piping, etc.);
3. Fencing;
4. Property lines and utility lines;
5. Roadways and railways;
6. Drainage ditches;
7. Leachate springs;
8. Surface water bodies;
9. Vegetation;
10. Topography;
11. Residences; and
12. Commercial buildings.

DOE shall document the procedures used in making the above determinations.

3.2 Geology

The investigation of Site geology should be tailored to ensure the identification of those features that will affect the fate and transport of hazardous substances. This investigation shall include but not be limited to:

A. A determination of the regional geology from available information;

B. A reconnaissance mapping of the area, which may include geophysical investigations on Site;

C. Subsurface exploration;

D. A characterization of the unconsolidated overburden and soil deposits (thickness and aerial extent of units, lithology, mineralogy, particle size, sorting, porosity, etc.); and

E. A characterization of the bedrock (type, lithology, petrology, structure, discontinuities, or unusual features such as dikes, karst, etc.).

DOE shall document the procedures used in making the above determinations.

3.3 Hydrogeology

DOE shall perform a Site-wide hydrogeologic study to evaluate the subsurface geology, water bearing formations, and the nature and extent of groundwater contamination. The study shall determine the location of water bearing formations, confining lenses, bedrock, and other subsurface geologic features, and shall support the determination of the vertical and horizontal distribution of hazardous substances. The study shall also support the prediction of the long-term disposition of any identified hazardous substances. Efforts should begin with a survey of previous hydrogeologic studies and other existing data.

A detailed technical description of all methods to be used in gathering data for this task shall be included in the RI/FS Work Plan. This shall include a diagrammatic representation of proposed monitoring well locations, monitoring well design and construction, information on construction materials, drilling techniques, and well development methods.

DOE shall conduct a program to evaluate hydrogeologic conditions at the Site. This program shall provide the following information for the region, for the Site, and as appropriate, for localized areas within the Site:

A. A description of the geologic and hydrogeologic groundwater flow beneath the Site, including:

1. Stratigraphy: description of strata including strike and dip identification of stratigraphic contacts;

2. Structural geology: description of local and regional features (e.g., folding, faulting, jointing, etc.);

3. Depositional history;

4. Identification and characterization of areas and amounts of recharge and discharge;

5. Groundwater flow patterns; and

6. Seasonal variations in the groundwater flow regime.

B. An analysis of any topographic features that might influence the groundwater flow system.

C. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the Site (i.e., the aquifers and any intervening saturated and unsaturated units), including but not limited to:

1. Hydraulic conductivity and porosity (total and effective);

2. Storativity and transmissivity;

3. Lithology, grain size, sorting, degree of cementation;

4. A determination of hydraulic interconnections between saturated zones;

5. The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content, etc.); and

6. A chemical analysis of the natural earth materials.

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

1. Sand, gravel, and other unconsolidated deposits;

2. Zones of fracturing or channeling in consolidated or unconsolidated deposits;

3. Zones of higher permeability or lower permeability that might direct and restrict the flow of contaminants;

4. Aquifers: geologic formations, groups of formations, or parts of formations capable of yielding usable amounts of ground water to wells or springs;

5. Springs and seeps; and

6. Water bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

E. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of potential contaminant sources, a representative description of water level or fluid pressure monitoring including:

1. Water level contour and/or potentiometric maps reflecting seasonal fluctuations;

2. Hydrologic cross-sections showing vertical gradients;

3. The flow system, including the vertical and horizontal components of flow; and

4. Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

F. A description of man-made influences that may affect the hydrogeology of the Site, identifying:

1. Active and inactive local water supply and production wells with an approximate schedule of pumping; and

2. Man-made hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention area, etc.).

DOE shall document the procedures used in making the above determinations.

3.3.1 Residential Well Investigation

DOE shall collect all available data pertinent to the residential and municipal wells within a two mile radius of the Plant. This shall include but not be limited to previous analyses, well logs, methods of installation and depths. DOE shall determine whether any of the identified wells are currently being used, particularly as a source of potable water. DOE shall then prepare a sampling plan (to be included in the RI/FS Work Plan) to analyze samples collected from wells in the immediate vicinity of the Site and additional wells downgradient of the Site. Water samples shall be analyzed for all appropriate radionuclides and all TCL parameters.

DOE shall document the procedures used in making the above determinations.

3.4 Soil and Sediments Investigations

DOE shall conduct a program to characterize the soil and rock units in the vicinity of the contaminant release(s). This process may overlap with certain aspects of the hydrogeologic study (e.g., characteristics of soil strata are relevant to both the transport of contaminants by ground water and to the locations of contaminants in the soil). A survey of existing data on soils and sediments may be useful. The characterization may include, but not be limited to, the following information:

a. SCS soil classification;
b. Surface soil distribution;
c. Soil profile, including ASTM classification of soils;
d. Transects of soil stratigraphy;
e. Hydraulic conductivity (saturated and unsaturated);
f. Relative permeability;
g. Bulk density;
h. Porosity;
i. Soil sorptive capacity;
j. Cation exchange capacity (CEC);
k. Soil organic content;
l. Soil pH;
m. Particle size distribution;
n. Depth of water table;
o. Moisture content;
p. Effect of stratification on unsaturated flow;
q. Infiltration;
r. Evapotranspiration;
s. Storage capacity;
t. Vertical flow rate; and
u. Mineral content.

DOE shall document the procedures used in making the above determinations.

3.5 Surface Water Investigation

DOE shall include a program to characterize Site surface water bodies. This investigation may overlap with the soils and sediments investigation as data from stream and pond sediment samples may be relevant to surface water quality. Surface water characterization may include, but not be limited to, the following activities and information:

A. A description of the temporal and permanent surface water bodies including:

1. For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

2. For streams, ditches, drains, swamps, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);

3. Drainage patterns;

4. Evapotranspiration; and

5. Aquatic biota.

B. A description of the chemistry of the surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, and total organic carbon.

C. A description of sediment characteristics including:

1. Deposition area;

2. Thickness profile;

3. Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.); and

4. Benthic organisms.

DOE shall document the procedures used in making the above determinations.

3.6 Meteorologic Investigation

DOE shall conduct a program to characterize meteorologic conditions in the vicinity of the Site for purposes of evaluating atmospheric contaminant transport mechanisms, contaminant dispersion, and potential areas of contaminant deposition.

A. DOE shall provide information characterizing the climate in the vicinity of the Site. The characterization shall include, but not be limited to, the following information:

1. Annual and monthly rainfall averages, along with maximum and minimum values;

2. Monthly temperature averages and extremes;

3. Wind speed and direction; average, maximum and minimum monthly and annual values;

4. Relative humidity/dew point;

5. Atmospheric pressure;

6. Evaporation data;

7. Development of inversions; and

8. Climate extremes that have been known to occur in the vicinity of the Site, including frequency of occurrence.

B. DOE shall also include a description of topographic and man-made features which affect air flow and emission patterns, including:

1. Ridges, hills or mountain areas;

2. Canyons or valleys;

3. Surface water bodies (e.g., rivers, lakes, bays, etc.);

4. Wind breaks and forests; and

5. Buildings.

DOE shall document the procedures used in making the above determinations.

3.7 Human Populations and Land-Use

DOE shall collect such data as is necessary to sufficiently identify, enumerate, and characterize human populations potentially exposed to contaminants released from the Site. For each potentially exposed population, information shall be collected on population size and location. Special consideration is to be given to identification of potentially sensitive subpopulations (e.g., pregnant women, infants, elderly) to better facilitate the characterization of risks posed by contaminants exhibiting specific effects (e.g., irritants, carcinogens, mutagens, etc.). Census and other survey data may be used to identify and describe the population potentially exposed to contaminated media. Data describing the type and extent of human contact with contaminated media shall also be collected, including but not limited to:

A. Location and use of surface waters, including:

1. Drinking water intakes;
2. Recreational (swimming, fishing) areas; and
3. Connections between surface water bodies.

B. Local use of ground water as a drinking water source, including:

1. Number and location of wells; and
2. Population served.

C. Human use or access to the Site and adjacent areas, including:

1. Residential use;
2. Commercial use;
3. Recreational use;
4. Agricultural use; and
5. Industrial use.

D. Location of population with respect to the Plant, including proximity, prevailing wind direction, and surface waters.

DOE shall document the procedures used in making the above determinations.

3.8 Ecological Investigations

DOE shall collect biological and ecological information for use in the evaluation of impacts to the environment and to assist in the identification of potential effects with regard to the implementation of remedial actions. This information shall include, but not be limited to:

A. Identification of the flora and fauna in and around the Site;

B. Identification of sensitive environments in and around the Site (e.g., wetlands, flood plains, wildlife breeding areas, etc.);

C. Identification of endangered species and their habitats in and around the Site;

D. Identification of those species consumed by humans or found in human food chains; and

E. Bioaccumulation data on food chain organisms, such as aquatic invertebrates and fish.

DOE shall document the procedures used in making the above determinations.

4.0 SOURCE CHARACTERIZATION

DOE shall collect such data as is necessary to adequately characterize the sources of hazardous substances. Special attention shall be paid to the areas where wastes have been placed, collected, or removed including:

type, quantity, physical form, disposition (containment or nature of deposit), Site characteristics affecting release (e.g., Plant security and engineered barriers), and chemical and radiological composition of contaminants. The investigation shall identify the locations and probable quantities of subsurface wastes, such as buried drums, through the use of appropriate geophysical methods. Wherever feasible, DOE shall also propose intrusive sampling methods for collecting the required data. The following specific information shall be collected for each source area:

A. Location;
B. Type of source area;
C. Design features;
D. Operating practices (past and present);
E. Period of operation;
F. Age of source area;
G. General physical conditions;
H. Method used to close the source area; and
I. Waste characterization.

DOE shall document the procedures used in making the above determinations.

5.0 DETERMINATION OF THE NATURE AND EXTENT OF CONTAMINATION

DOE shall identify and characterize contamination of Site ground water, surface water, soils, sediment and air. Data collected shall be sufficient to define the extent, origin, direction, and rate of contaminant migration. DOE shall as appropriate collect the following information:

A. Type of contaminants present, including:

1. Hazardous properties;
2. Quantity; and
3. Chemical composition.

B. Physical and chemical characteristics of contaminants, including:

1. Physical form (solid, liquid, gas);
2. Temperature;
3. pH;
4. General chemical class (e.g., acid, base, solvent);
5. Molecular weight;
6. Density;
7. Boiling point;
8. Viscosity;
9. Solubility in water;
10. Cohesiveness of the waste;
11. Vapor pressure;
12. Flash point;
13. Identification of all degradation products;
14. Properties of each radioisotope present, including:

a. Possible chemical form (e.g., valent state);
b. Principal particulate radiations (energies, percent abundance);
c. Energy/intensity of principle gamma and x-radiation;
d. Decay schemes;
e. Significant daughter products;
f. Half-life of each isotope;
g. Chemical toxicity; and

15. Characterization of each significant radioisotope including as appropriate:

a. Media affected;
b. Active concentration in each medium (activity per unit mass or per unit volume);
c. Chemical form (e.g., HTO, T_2O, T_2, etc.);
d. Lung solubility class;
e. Particulate size including air particulate size); and
f. Measured local background activity concentration values in each media.

C. Migration and dispersal characteristics of contaminants, including:

1. Sorption;
2. Biodegradability, bioconcentration, and biotransformation;
3. Photodegradation rates;
4. Hydrolysis rates; and
5. Chemical transformations.

DOE shall document the procedures used in making the above determinations.

5.1 Groundwater Contamination

DOE shall conduct a groundwater investigation to characterize groundwater contamination which may be present at the Site. The investigation shall address the degree of hazard, the mobility of hazardous substances considered (from contaminant characterizations), the soils' attenuation capacity and mechanism of attenuation, discharge/recharge areas, regional and Site-specific flow directions, (including both vertical and horizontal flow components), and effects of any pumping alternatives that are developed, if applicable. This investigation shall at a minimum provide the following information:

A. A characterization of the horizontal and vertical extent of any immiscible or dissolved hazardous substance plume(s) originating from the Plant;

B. The horizontal and vertical components of contaminant movement;

C. The velocity of contaminant movement;

D. The horizontal and vertical concentration profiles of hazardous substances in identified plume(s);

E. An evaluation of factors influencing plume movement;

F. An extrapolation of future contaminant movement; and

G. Background sampling in the area upgradient from the contaminant source.

DOE shall follow the guidance outlined in U.S. EPA's Technical Enforcement Guidance Document (September 1986) for well design, construction, development, purging, sampling, geophysics, modeling, etc. and shall document the procedures used in making the above determinations.

5.2 Soil Contamination

DOE shall conduct an investigation to characterize the horizontal and vertical extent of surface and subsurface soil contamination at the Site. The investigation shall be designed to collect the following information:

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

B. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes, as appropriate, contaminant solubility, speciation, sorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation. Degradation products shall be identified;

C. Identification of hazardous substances present;

D. The velocity and direction of contaminant movement;

E. An extrapolation of future contaminant movement; and

F. Background sampling in an area unaffected by the contaminant source(s).

DOE shall document the procedures used in making the above determinations.

5.3 Surface Water and Sediment Contamination

DOE shall conduct an investigation to determine the location and extent of Site surface water and sediment contamination including any ponds and drainage ditches. The investigation shall include, but not be limited to, the following information:

A. A characterization of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Plant or its

activities, and the extent and concentration of contamination in underlying sediments and surface water;

B. The horizontal and vertical direction of contaminant movement in sediment and surface water;

C. The contaminant velocity in sediments and surface water;

D. An evaluation of the physical, biological and chemical factors influencing contaminant movement in sediment and surface water;

E. An extrapolation of future contaminant movement in sediment and surface water;

F. A characterization of the chemical and radiological properties of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations (to include TCL constituents and appropriate radionuclides); and

G. Background sampling in the area upstream from the contaminant source.

DOE shall document the procedures used in making the above determinations.

5.4 Air Contamination

DOE shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. This program shall include field screening for radiation and chemical pollutants. Areas exhibiting readings above background shall be sampled using sampling devices such as carbon or Tenax tubes and analyzed for TCL volatiles, semi-volatiles, and TCL metals as appropriate. Areas exhibiting elevated radioactivity are to be further characterized using the appropriate radiological testing methods and devices. DOE shall propose sampling methods and parameters subject to U.S. EPA approval. This investigation shall provide the following information:

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

B. The rate and amount of the release;

C. The chemical, physical and radiological composition of the contaminant(s) released, including horizontal and vertical concentration profiles. TCL and radionuclide testing shall be undertaken.

DOE shall document the procedures used in making the above determinations.

6.0 DATA ANALYSES

DOE shall prepare an analysis and summary of all investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Feasibility Study. The analyses shall be prepared in accordance with the U.S. EPA RI/FS guidance.

A. The analyses of the data collected should focus on the development or refinement of the conceptual Site model by presenting and analyzing data on:

   1. The nature and extent of contamination;

   2. The contaminated transport pathways and fate; and

   3. The effects on human health and the environment.

B. Data collection and analysis is complete when:

   1. The Data Quality Objectives (DQOs) are met;

   2. The need (or lack thereof) for remedial action is documented; and

   3. The data necessary for the development and evaluation of remedial alternatives have been obtained.

C. The evaluation of Site characteristics should focus on the current extent of contamination and estimating the travel time to, and predicting contaminant concentrations at, potential exposure points.

   1. Data on Site physical characteristics shall be analyzed to describe:

      a. Environmental setting (surface features, soils, geology, hydrology, meteorology, and ecology).

   2. Data on source characteristics shall be analyzed to describe:

      a. The source location;

      b. The type and integrity of any existing waste containment; and

c. The types, quantities, chemical, radiological, and physical properties, and concentrations of hazardous substances found.

3. An analysis of data collected concerning the Site shall be performed to describe the nature and extent of contaminant concentrations found in environmental media. This analysis should include the horizontal and vertical extent of contamination in:

   a. Soil;
   b. Ground water;
   c. Surface water;
   d. Sediment;
   e. Air; and
   f. Biota.

4. The results of the analyses on Site physical characteristics, source characteristics, and nature and extent of contamination shall be combined in the analyses of contaminant fate and transport.

   Where information on the contaminant release is available, the observed extent of contamination shall be used in assessing the transport pathway's rate of migration and the fate of contaminants over the period between release and monitoring. Where such data is not available, contaminant fate and transport must be estimated (modeled) utilizing Site physical characteristics and source characteristics.

Data shall be arranged in graphical or tabular form for clarity. DOE shall document the procedures used in making the above determinations.

7.0 BASELINE RISK ASSESSMENT

DOE shall prepare a baseline risk assessment for the Site that identifies and characterizes the toxicity and levels of hazardous substances present, contaminant fate and transport, the potential for human or environmental exposure, or both, and the risk of potential impacts or threats on human health and the environment. It will provide the basis for determining whether or not remedial action is necessary, and a justification for performing remedial actions. The procedures to perform a baseline risk assessment for human health are outlined in U.S. EPA's Risk Assessment Guidance for Superfund (July 1989). These procedures are outlined below and must be followed by DOE. Other resources that DOE may utilize when performing the baseline risk assessment include: U.S. EPA's Superfund Exposure Assessment Manual (April 1988), the Integrated Risk Information System (IRIS), and other sources relating to ecological and radiological assessment.

The risk assessment process is divided into the four components listed below. During the scoping of the risk assessment, DOE will submit to the

U.S. EPA for review and comment an outline of the format of the risk assessment report, as well as a listing of the references to be utilized during the baseline risk assessment.

A. Contaminant Identification. DOE shall screen the information available on hazardous substances present at the Site to identify contaminants of concern and to focus subsequent efforts in the risk assessment process. Contaminants of concern shall be selected because of their intrinsic toxicological properties, because they are present in large quantities, or because they are presently in or may move into critical exposure pathways (e.g., drinking water supply). DOE shall also consider the additive effects of risks. DOE shall submit to U.S. EPA for review and comment a technical memorandum listing all hazardous substances and their range of concentrations present at the Site. DOE shall propose the indicator chemicals and provide the rationale for their selection. Indicator chemicals shall be selected to represent the most toxic, persistent, and/or mobile substances among those identified that are likely to significantly contribute to the overall risk posed by the Site. The list developed shall be re-examined by DOE and U.S. EPA during the remedy selection and the remedial action phase to ensure that the waste management strategy being implemented addresses risks posed by the range of contaminants found at the Site.

B. Exposure Assessment. The objectives of an exposure assessment are to identify actual or potential exposure pathways, to characterize the potentially exposed population, and to determine the extent of exposure. DOE shall follow the detailed guidance on exposure assessments that is provided in the Superfund Exposure Assessment Manual (April 1988).

DOE shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the Plant. Chemical and radiological analysis of biological samples may be needed. Data on observable effects in ecosystems may also be obtained. The following characteristics shall be identified:

1. Local uses and possible future uses of ground water:

   a. Type of use (e.g., drinking water source: municipal, residential, agricultural, domestic/non-potable, or industrial); and

   b. Location of groundwater users including wells and discharge areas.

2. Local uses and possible future uses of surface waters draining the Site:

a. Domestic and municipal (e.g., potable and lawn/gardening watering);

b. Recreational (e.g., swimming and fishing);

c. Agricultural;

d. Industrial; and

e. Environmental (e.g., fish and wildlife propagation).

3. Human use or access to the Plant and adjacent lands.

4. A description of the biota on, adjacent to, affected or potentially affected by releases of hazardous substances from the Plant.

C. Toxicity Assessment. DOE shall gather data to evaluate:

1. The types of adverse health or environmental effects associated with individual and multiple chemical and radiological exposure;

2. The relationship between magnitude of exposures and adverse effects; and

3. Related uncertainties such as the weight of evidence for a chemical's or radionuclide's potential carcinogenicity in humans. This data shall be used by DOE to prepare both qualitative and quantitative estimates of risks associated with the chemicals and radionuclides found at the Site.

D. Risk Characterization. DOE shall develop and summarize a characterization of the potential risks of adverse health or environmental effects for each of the exposure scenarios derived in the exposure assessment. Estimates of risks shall be obtained by integrating information developed during the exposure and toxicity assessments to characterize the potential or actual risk, including carcinogenic risks, noncarcinogenic risks or environmental risks.

The final analysis should include a summary of the risks associated with the Site including each projected exposure route for contaminants of concern and the distribution of risk across various sectors of the population and environment. In addition, such factors as the weight-of-evidence associated with exposure assumptions must be discussed. Characterization of the environmental risks must identify the potential exposure to the surrounding ecological receptors and evaluate the potential effects associated with such exposures, along with consideration of the disruptive effects to populations (both plant and animal) and the extent of perturbations to the ecological community.

DOE shall document the procedures used in making the above determinations.

8.0 TREATABILITY INVESTIGATIONS

Bench or pilot scale treatability investigations shall be proposed as plans to U.S. EPA for review and approval. These investigations shall be deemed necessary where there is insufficient data to: 1) allow treatment alternatives to be fully developed and evaluated; 2) support the remedial design of a selected alternative; or 3) to reduce cost and performance uncertainties for treatment alternatives to acceptable levels.

9.0 ATSDR HEALTH ASSESSMENT

The RI Work Plan and supporting documents for the Site shall provide for collection of adequate information to support an ATSDR health assessment which is required by SARA. In order to ensure that the ATSDR needs are fulfilled, draft work plans and appropriate supporting documents will be submitted by U.S. EPA to ATSDR for review and comment. In the event that the health assessment has already been completed by ATSDR, the assessment may be re-evaluated based on any new data obtained during the RI.

FEASIBILITY STUDY

10.0 PURPOSE

The purpose of the Feasibility Study(ies) (FS) is to develop and evaluate remedial action alternatives for each interim or final remedial action and/or identified operable unit in order to recommend those alternative(s) which will effectively mitigate actual or potential threat(s) to human health, welfare or the environment resulting from the release or potential release of hazardous substances at or originating from the Mound Plant. The FS shall adhere to the processes and terminology identified in the U.S. EPA document Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (October 1988) as amended (RI/FS Guidance).

11.0 IDENTIFICATION AND DEVELOPMENT OF REMEDIAL ALTERNATIVES

Based on the results of the RI, consideration of the Preliminary Remedial Technologies identified as part of the RI, and identified Federal and State ARARs, DOE shall identify, screen and develop remedial alternatives for removal, containment, treatment and/or other remediation of identified contamination. The list of Preliminary Remedial Technologies identified during the RI scoping process will likely be modified based on the results of the RI.

11.1 Description of Current Situation

DOE shall update the information describing the current situation at the Mound Plant and the known nature and extent of contamination based on the results of the RI. DOE shall also update the information presented in the RI regarding previous response activities and any interim remedial actions which have been or are being implemented. This information shall be presented in the FS report.

11.2 Statement of Purpose and Establishment of Remedial Action Objectives and General Response Actions

Based on the results of the RI report and in conjunction with U.S. EPA, DOE shall develop a specific statement of purpose which shall include identification of remedial action objectives. Remedial action objectives shall address specific hazardous substances and media of interest, actual and potential exposure pathways, and preliminary remediation goals so as to permit a range of treatment and containment alternatives to be developed. The objectives shall be based on public health and environmental criteria, U.S EPA and OEPA guidance and practices, the National Contingency Plan (NCP), and the requirements of any other applicable Federal and State environmental standards, guidance and advisories as defined under SARA, Section 121 and State law. DOE shall then further develop the general response actions identified during project scoping to ensure that they satisfy the remedial action objectives.

11.3 Initial Screening of Preliminary Remedial Technologies

DOE shall review the results of the RI and further develop the list of remedial technologies and process options identified during project scoping in order to incorporate any additional technologies which are applicable to Site problems. Both on-Site and off-Site remedial technologies are to be included as appropriate.

DOE shall screen the revised list of preliminary remedial technologies based on technical implementability, using Site and waste characteristics as the screening criteria. Technologies that prove extremely difficult to implement, require unreasonable time periods, or rely on insufficiently developed technology are to be eliminated. Emerging technologies which may have application to Site problems are to be carried through the screening process if there is a reasonable belief that the technologies offer significant advantages. DOE shall document the reasons for excluding or carrying forward technology types. A technical memorandum containing the results of the initial screening of technologies shall be submitted to U.S. EPA for review and comment before proceeding with the alternatives development process.

This initial screening process shall focus on eliminating those technologies which have severe limitations for a given set of waste and Site-specific conditions. Site, contaminant, waste, and technology characteristics used to screen inappropriate technologies are described in more detail below:

A. Site Characteristics

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

B. Waste Characteristics

Waste characteristics that limit the implementability of a given technology shall be identified. Areas and volumes of contaminated media as identified in the RI shall be refined as necessary and used in the initial screening. The areas and volumes are to be defined by risk levels or contaminant concentrations depending on the nature of the hazardous substances. Technologies whose use is clearly limited by waste characteristics are to be eliminated from further consideration.

C. Technology Limitations

DOE shall identify the level of technology development, performance record, and inherent construction, operation, and maintenance problems for each technology being considered during the screening process. Technologies that are unreliable or perform poorly are to be eliminated from further consideration. Surviving technologies shall be protective of human health and the environment.

11.4 Screening of Technology Process Options

Upon comment by U.S. EPA of the technical memorandum identified in 11.3 above, DOE shall screen the process options associated with the surviving technology types based on effectiveness, implementability and cost effectiveness. DOE shall submit a technical memorandum containing the results of the process options screening to U.S. EPA for review and comment before proceeding with the alternatives development process. The screening criteria to be used in the evaluation of process options are further defined below:

A. Effectiveness

DOE shall evaluate: (1) the potential effectiveness of the process options in handling the estimated areas or volumes of contaminated media and meeting the remediation goals identified in the remedial action objectives; (2) the potential impact to human health and the environment during the construction and implementation phase; and (3) the degree to which the process options are proven and reliable with respect to the hazardous substances and Site conditions.

B. Implementability

DOE shall evaluate both the technical and administrative feasibility of implementing each one of the technology options. As the technical implementability has been previously considered during the preliminary screening of technology types (11.3 above), this more detailed evaluation shall place greater emphasis on the institutional aspects of implementability such as the ability to obtain required permits, availability of treatment storage and disposal services (including capacity), and the availability of necessary equipment and skilled workers necessary to implement the process option.

C. Cost

DOE shall evaluate the costs of the various process options within a given technology type. The evaluation shall recognize that costs play a limited role at this point in the screening process. Relative capital and O&M costs are to be used as opposed to detailed cost estimates. The cost evaluation shall be made based on best engineering judgment, with each process option evaluated as to whether costs are high, low, or medium relative to other process options within the same technology type.

11.5 Development and Preservation of Remedial Alternatives

DOE shall assemble ranges of alternatives for the Site and for each operable unit using the general response actions and process options chosen to represent the various technology types for each media and operable unit. Alternatives shall be developed for each of two broad categories of remedial actions: source control actions, and groundwater actions. Appropriate ranges of alternatives for each of these categories are further described below:

A. Source Control Alternatives

DOE shall develop a number of treatment alternatives ranging from one that would eliminate the need for long-term management (including monitoring) at the Site to one that would employ treatment as a primary component of an alternative to address the principal threats at the Site. Alternatives developed within this range will differ in the type and extent of treatment used and the management requirements of treatment residuals or untreated wastes.

One or more alternatives shall be developed that involve containment of waste with little or no treatment but protect human health and the environment by preventing exposure and/or reducing the mobility of the hazardous substances.

B. Groundwater Alternatives

DOE shall develop alternatives for contaminated groundwater remediation which address not only cleanup levels but also the time frame within which the groundwater restoration might be achieved. Alternatives are to be developed which achieve a maximum lifetime risk of 10E-4 to 10E-7 for carcinogens and a hazard index of less than one for noncarcinogens within varying time frames using different methodologies. For aquifers currently being used as a drinking water source, at least one alternative is to be developed which achieves Federal and State ARARs and risk and/or health based levels as rapidly as possible. Where feasible, one alternative shall be developed that would restore ground water to a 10E-6 maximum lifetime cancer risk level and a hazard index of less than one within five years.

11.5.1 Initial Screening of Alternatives

Following the development of alternatives, DOE shall evaluate each alternative against the short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost. The purpose of the screening evaluation shall be to reduce the number of alternatives that will undergo detailed analysis while preserving a range of treatment and containment technologies from the list initially developed, to the extent it makes sense to do so. Evaluation criteria for the initial screening of alternatives are further described below:

A. Effectiveness

Each alternative shall be evaluated as to its effectiveness in providing protection to human health and the environment and the reductions in toxicity, mobility, or volume that it will achieve. Both the short-term (during construction and implementation) and the long-term (period after the remedial action is completed) components of effectiveness shall be evaluated.

B. Implementability

Each alternative shall be evaluated for both the technical and administrative feasibility of constructing, operating and maintaining the alternative. Technical feasibility refers to the ability to construct, reliably operate, and meet technology-specific regulations for process options until the remedial action is complete; it also includes operation, maintenance, replacement, and monitoring of the technical components of the alternative. Administrative feasibility refers to the ability to obtain regulatory approvals as necessary, availability of treatment, storage, and disposal services and capacities, and the requirements for, and availability of, specific equipment and technical specialists.

C. Cost

The focus of the cost evaluation shall be to make comparative estimates of alternatives with relative accuracy so that cost decisions between alternatives will be sustained as the accuracy of cost estimates improves beyond the initial screening process. Both capital and O&M costs shall be considered. The evaluation shall include those O&M costs that will be incurred for as long as necessary, even after the initial remedial action is complete. Present worth analyses shall be used to evaluate expenditures that occur over different time periods. All costs shall also be discounted to a common base year so alternatives can be compared on the basis of a single figure for each alternative. DOE shall rely on U.S. EPA's Cost Compendium for Remedial Actions for those technologies covered by the compendium. DOE shall document sources of cost information used for those technologies which are not covered by the compendium.

11.5.2 Alternatives Array Document

DOE shall prepare an Alternatives Array Document containing a detailed description of each alternative surviving the initial screening, including extent of remediation, contaminant levels to be achieved, and methods of treatment used. The Alternatives Array Document shall also include a brief history and Site background, and a Site characterization indicating hazardous substances, pathways, receptors, other pertinent Site features, and proposed Federal and State ARARs for each alternative. The decision-making process employed in the initial screening shall be fully documented. The Alternatives Array Document shall be submitted to U.S. EPA for review and comment prior to proceeding with the detailed screening of alternatives.

11.6 Post-Screening Phase

DOE shall initiate treatability testing for those process options that will require additional data for detailed analysis. Additional Site characterization work for purposes of better defining the effect of Site conditions on the performance of the technologies of greatest interest shall be undertaken as appropriate.

A. Bench and Pilot Scale Studies

DOE may propose bench and pilot scale studies. U.S. EPA shall determine the need for such studies. If the need for bench and pilot scale studies has been determined, DOE shall prepare a work plan to be submitted to U.S. EPA for review and approval, based on the suggested format for bench and pilot scale work plans (Tables 5-5 and 5-6) identified in the RI/FS Guidance. The work plan shall contain adequate quality assurance and quality control procedures for conducting the studies and employ uniform testing procedures approved by U.S. EPA. The studies shall be conducted and documented in such a manner as to facilitate use

of the information when conducting similar studies at other sites (see Chapter 5 of the RI/FS Guidance).

B. Post-Screening Field Investigation

DOE may propose additional field studies for purposes of refining Site characteristics and alternatives. U.S. EPA shall determine the need for such studies.

If the need for additional field studies has been determined, DOE shall prepare a work plan for these studies to be submitted to U.S. EPA for review and approval. Additional quality assurance and quality control procedures and additional health and safety requirements shall be identified in the work plan as appropriate.

C. Refine Remedial Action Objectives

DOE shall refine the medium- and operable unit-specific Remedial Action Objectives developed during project scoping based on the initial screening of alternatives (11.5 above) and any new information obtained from additional studies (11.6 above). At this point in the process, the Remedial Action Objectives are to be as specific as possible.

12.0 DETAILED ANALYSIS OF ALTERNATIVES

DOE shall conduct a detailed analysis of the alternatives remaining after the initial screening as documented in the Alternatives Array Document. DOE shall identify and describe Federal and State ARARs and other criteria, advisories and guidance to be used in the analysis and selection of remedy(s). Alternatives shall be analyzed in sufficient detail so as to allow selection of remedy(s) from a set of defined and discrete hazardous waste management approaches.

DOE shall develop and use the information necessary to evaluate each alternative. The specific statutory requirements for remedial actions that must be supported in each FS report are listed below. Remedial actions must:

A. Be protective of human health and the environment;

B. Attain Federal and State ARARs (or provide grounds for invoking the appropriate waiver);

C. Be cost effective;

D. Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and

E. Satisfy the preference for treatment that reduces toxicity, mobility, or volume as a principal element or provide an explanation as to why it does not.

In addition, CERCLA places an emphasis on evaluating the long-term effectiveness and related considerations for each of the alternative remedial actions (Section 121(b)(1)(a)). These statutory considerations include:

1. The long-term uncertainties associated with land disposal;

2. The goals, objectives, and requirements of the Solid Waste Disposal Act;

3. The persistence, toxicity, and mobility of substances and their constituents, and their propensity to bioaccumulate;

4. Short- and long-term potential for adverse health effects from human exposure;

5. Long-term maintenance costs;

6. The potential for future remedial action costs if the alternative remedial action in question were to fail; and

7. The potential threat to human health and the environment associated with excavation, transportation, and redisposal, or containment.

12.1 Application of the Nine Criteria and Document Analysis

DOE shall perform a detailed analysis of the alternatives surviving the initial screening in order to provide the basis for identifying the preferred alternative and preparing the Proposed Plan. The analysis shall evaluate each alternative in detail using the nine evaluation criteria listed below, incorporating any treatability study data and additional Site characterization data that may have been collected.

1. Overall Protection of Human Health and the Environment addresses whether or not each alternative provides adequate protection and describes how the risks posed by each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not each alternative will meet all of the applicable or relevant and appropriate requirements and/or provide grounds for invoking a waiver.

3. Long-term Effectiveness and Permanence refers to the ability of each alternative to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

4. Reduction of Toxicity, Mobility, and/or Volume Through Treatment is the anticipated performance of the treatment technologies each alternative may employ.

5. Short-term Effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals have been met.

6. Implementability is the technical and administrative feasibility of each alternative, including the availability of materials and services needed to implement a particular option.

7. Cost includes estimated capital and operation and maintenance costs, and net present worth costs.

8. State Acceptance addresses the technical and administrative issues and concerns OEPA may have regarding each alternative.

9. Community Acceptance addresses the issues and concerns the public may have regarding each alternative.

DOE shall refer to Chapter 6 of the RI/FS Guidance for further definition of the above nine criteria and the processes employed during the detailed analysis of alternatives.

(Note: Criteria 8 and 9 are to be incorporated into the FS as the Responsiveness Summary after the RI/FS has been released to the public).

12.2 Presentation of Individual Analyses

For each alternative, DOE shall provide: 1) a description of the alternative which details the waste management strategy involved and identifies associated Federal and State ARARs; 2) a narrative discussion of the application of each of the evaluation criteria; and 3) a comparison of the alternative to each of the other alternatives with respect to the evaluation criteria identified in 12.1 above. DOE shall submit the detailed alternative descriptions, and the results of the detailed analysis and comparison of alternatives as a Technical Memorandum to U.S. EPA for review and comment.

Following regulatory comment on the submittal discussed above, DOE shall incorporate the detailed analysis and comparison of individual alternatives into the draft FS report as a narrative discussion accompanied by a summary table.

13.0 ENDANGERMENT ASSESSMENT

DOE shall conduct an Endangerment Assessment (EA) which evaluates the collective demographic, geographic, physical, radiological, chemical and biological factors to determine whether there is a significant risk to

public health or the environment as a result of a threatened or actual release of a hazardous substance. The findings of the EA shall be summarized and submitted as a technical memoranda for to U.S. EPA for review and comment.

DOE shall prepare a Level III Endangerment Assessment (EA) for the Site, and individual EAs for each of the operable units. The Level III EA shall evaluate for each receptor the total risk posed by all identified contaminant sources (i.e., the additive risks posed by each of the operable units). The level of complexity for the operable unit specific EAs will be determined following evaluation of the RI data for the specific operable unit. The EAs are to be incorporated into the appropriate FS report(s).

The EAs will build upon the information developed during the preparation of the base-line Risk Assessment(s) during the RI. The EAs shall follow U.S. EPA's The Endangerment Assessment Handbook (August 1985), Risk Assessment Guidance for Superfund (July 1989), and the Superfund Exposure Assessment Manual (April 1988), and shall be of sufficient detail to allow derivation of cleanup criteria for those hazardous substances for which such criteria does not already exist.

14.0 FEASIBILITY STUDY REPORT

DOE shall present the results of 11.0 and 12.0 in the FS report. The FS report shall follow the suggested FS report format (Table 6-5) identified in the RI/FS Guidance. Support data, information, and calculations are to be included in appendices to the report. DOE will prepare and submit a draft FS report to U.S. EPA for review and approval. Once comments have been received, DOE shall prepare a final FS report reflecting regulatory comments.

15.0 RESPONDENTS' RECOMMENDATION OF A REMEDIAL ALTERNATIVE

DOE may recommend a remedial alternative in a draft proposed plan to U.S. EPA for consideration and approval. When recommending a remedy DOE shall provide the supporting evaluation using the criteria and process in the U.S. EPA guidance and the NCP. The supporting rationale shall be provided in a separate proposed plan and may be submitted simultaneously with the draft FS report. Following regulatory approval of the selected remedy, U.S. EPA will further define Federal and States ARARs and other advisories and guidance to be used in remedy development and design. U.S. DOE shall prepare and submit a ROD in accordance with Part X of the Agreement.

Attachment II

Deliverables
DOE Mound Plant

The following section lists and briefly describes the deliverables required in the RI/FS sections of this agreement for the DOE Mound Plant. Each deliverable is listed according to its primary or secondary designation. Primary documents are those which represent the final documentation of key data and reflect decisions on how to proceed. Secondary documents are those which represent an interim step in the decision making process, or are issued for information only and may not reflect key decisions. Secondary documents are intended to provide a tracking mechanism to assist the parties in monitoring the progress of the RI/FS during its execution. Secondary documents are always incorporated into primary documents, and therefore they will not be revised based on review and comment. Comments prepared during review of secondary documents will be addressed as the secondary document is incorporated into corresponding primary document.

All deliverables will be prepared in accordance with the appropriate format and guidance as presented or referenced in the U.S. EPA document Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Interim Final, October 1988, EPA/540/G-89/004).

Primary Documents

Limited Additional Studies - Work Plans

Limited additional studies may be proposed as interim scoping tasks. Work plans for these studies will be submitted to U.S. EPA and OEPA for review and approval.

RI/FS Work Plan

The RI/FS Work Plan will propose work sufficient to perform a Remedial Investigation and Feasibility Study for the Site. This document will incorporate the results of the preinvestigation evaluation of remedial technologies, which will be submitted as a secondary document. The Work Plan shall be submitted for review and approval to U.S. EPA by April 13, 1990. In accordance with the U.S. EPA RI/FS guidance the following sections will be part of the Work Plan: Site Background, Preinvestigation (Initial) Evaluation, Work Plan Rationale (including Operable Units), RI/FS Tasks including Community Relations Plan (as an appendix), Schedule for the work to be performed, Project Management Plan (as an appendix), and Sampling and Analysis Plan. The Sampling and Analysis Plan shall consist of three parts: 1) the Field Sampling Plan (FSP); 2) the Quality Assurance Project Plan (QAPP); and 3) the Health and Safety Plan.

Remedial Investigation Report

The RI Report will summarize the results of the remedial investigation, including Data Analysis and the Baseline Risk Assessment. The RI Report will incorporate information from a series of technical memoranda previously submitted as secondary documents.

Treatability Investigation, Bench or Pilot Scale - Work Plan

Work plans for treatability investigations will be submitted for review and approval as required.

Feasibility Study Report

The FS Report contains the detailed analysis and comparison of remedial alternatives and includes any required Endangerment Assessments. The FS Report will incorporate information from a series of technical memoranda previously submitted as secondary documents.

Proposed Plan

After receiving concurrence from U.S. EPA on the proposed remedy, DOE shall submit a Proposed Plan to the U.S. EPA for comment and approval. Upon approval, the Proposed Plan shall be issued for public comment. Upon consideration of public comments, the Proposed Plan shall be incorporated into the Record of Decision. Preparation of the Proposed Plan and Record of Decision shall be in accordance with Guidance on Preparing Superfund Decision Documents (July 1989, EPA/540/G-89/007).

Yearly Schedules

In addition to the schedules provided in all required work plans, each year DOE shall prepare for U.S. EPA approval an overall schedule for all activities at the Mound Plant including RI/FS, other studies, Proposed Plan and Record of Decision preparation. The current year will be scheduled on a monthly basis, the next year on a quarterly basis, and any additional years on a yearly basis. This schedule will be submitted for review and approval thirty days following the effective date of this agreement and yearly for the life of the agreement.

RD/RA Work Plan

The RD/RA work plan will propose work sufficient to perform a Remedial Design and Remedial Action as defined in the ROD(s) and in accordance with U.S. EPA guidance. The work plan will provide a schedule for all planned activities through implementation of the Remedial Action. U.S. DOE shall provide for any long-term operation for each Remedial Action. In addition, it shall include a plan to demonstrate that the Remedial Action, once implemented, meets the requirements of the ROD and CERCLA.

Secondary Documents

Limited Additional Studies - Report(s)

If additional studies are performed as interim scoping tasks a letter report containing the results and conclusions of those studies will be prepared and submitted for regulatory review and approval. The results of these studies will be integrated into the remedial investigation and will be documented in the RI/FS Work Plan and RI Report.

Preinvestigation Evaluation of Remedial Action Technologies

The preinvestigation of remedial action technologies is performed during project scoping. The results of this evaluation are incorporated into the RI/FS Work Plan (a primary document) and developed throughout the FS.

Technical Memoranda Related to the Baseline Risk Assessment

During the Scoping of the baseline risk assessment, DOE will submit to U.S. EPA and OEPA the following technical memoranda:

-An outline of the risk assessment report format including a proposed list of references to be used during the preparation of the risk assessment;

-A list of all hazardous substances present at the Site;

-A list of proposed indicator chemicals;

-An Exposure Assessment;

-A Toxicity Assessment; and

-A Risk Characterization.

Technical Memoranda related to the Remedial Investigation

As appropriate, DOE will submit various technical memoranda during the performance of the remedial investigation as individual investigative tasks are completed. Appropriate technical memoranda will be identified and submitted depending on the nature and complexity of individual operable unit investigations that may be performed. Technical memoranda may include but are not necessarily limited to the following:

-Source Characterization Report;

-Ambient Air Quality Investigation Report;

-Sediment and Surface Water Investigation Report;

-Gas Migration Study Report;

-Radiological Investigation Report;

-Surficial and Subsurficial Soil Investigation Report;

-Cap Integrity Study Report;

-Hydrogeologic Investigation Report;

-Residential Water Investigation Report; and

-Existing Monitoring Well Evaluation Report.

All of this information and any comments received will eventually be incorporated into the RI Report.

Technical Memoranda related to Feasibility Study

DOE will submit various technical memoranda during the performance of the Feasibility Study. These technical memoranda will include:

-Endangerment Assessment Components;

-Screening of Preliminary Remedial Technologies (to include the Statement of Purpose, Remedial Action Objectives, and General Response Actions);

-Screening of Technology Process Options;

-Alternatives Array Document; and

-Results of Treatability Studies.

DOE shall prepare technical memoranda containing information as required in the CERCLA RI/FS Guidance. All of this information and any comments received will eventually be incorporated into the FS Report.

Monthly Progress Reports

DOE shall provide monthly progress reports throughout the life of this agreement. Monthly progress reports are due within ten days following the month being reported (e.g., the May report will be due no later than June 10). The monthly progress reports shall at a minimum contain the following information:

-Minutes of the monthly project managers meeting;

-Status of approved agreements, commitments, or charges;

-Changes in key personnel;

-Actions taken pursuant to this agreement including percent completion;

-Results of sampling and tests and other data received or generated by DOE pursuant to this agreement;

-Photographs illustrating actions taken at the Site;

-All actions or activities completed during the month;

-Actions or activities planned for the next two months; and

-Description of any delays or problems that arose or could be anticipated during the execution of the work described in this agreement and any steps taken by DOE to alleviate such delays and problems.