ATTACHMENT 1 - MAP

The map presented as this Attachment locates all inactive sites known to have managed hazardous substances, or released hazardous substances to the environment. Sites 211 and 217 are within Building 881 and are not shown on the map. Site 178 is located in a room within Building 881, and not the entire building as represented in the map. Sites 187 and 189 have not been located on the map at this time due to insufficient information. These two sites will be located and investigated as required by this Agreement. Sites 198 through 202 are off-site or general areas and are not shown on the site map.

ATTACHMENT 2 - Rocky Flats Plant U.S.D.O.E.
FEDERAL FACILITY AGREEMENT STATEMENT OF WORK

I.A. Introduction

The purpose of this attachment is to set forth the elements of work required to be performed to respond to all hazardous substance releases or threat of releases at or from the U.S. DOE Rocky Flats Plant (DOE) which may cause harm to human health or the environment. This attachment outlines work to be performed during the investigatory and study phase, ie; Remedial Investigation/Feasibility Study (RI/FS)/RCRA Facility Investigation/Corrective Measures Study (RFI/CMS), of the response process. It does not completely describe the specifics of the Submittals required during the remedial design, remedial action, or other implementation phases of the response program. All response activities performed by DOE shall be consistent with CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), RCRA, and applicable State law. At a minimum, all response activities shall also be consistent with:

- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, October 1988.
- RCRA Facility Investigation Guidance, Interim Final, May 1989.
- Guidance on Preparing Superfund Decision Documents: The Proposed Plan and Record of Decision, March 1988.
- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, October 1986.
- Compendium of Superfund Field Operation Methods, September 1987.
- Superfund Public Health Evaluation Manual, October 1986.
- Community Relations in Superfund: A Handbook, Interim Final, June 1988.
- Federal Register, Volume 52, Number 53, Thursday, March 19, 1987, pp. 8704 - 8709.
- Risk Assessment Guidance for Superfund, Volume II-Environmental Evaluation Manual, Interim Final,

March, 1989.

[The most recent version of the above citations published at least four months prior to the required submittal date for each document shall always be used.]

While this Statement of Work (SOW) provides details on specific response requirements that must be met during the investigatory and study phase of the response process, it is incumbent upon DOE to perform all response activities in compliance and consistent with this Federal Facility Agreement and Consent Order (Agreement) and applicable laws, regulations and guidance.

I.B. General Response Procedures

I.B.1. As described in the aforementioned guidance documents, the general response processes under CERCLA and RCRA during the investigatory and study phase of each Operable Unit (OU) call for: 1) Preparing initial overview of the project scope, 2) Identification of individual hazardous substance releases, or threats of release 3) Grouping the individual hazardous substance sites into OUs, 4) Characterizing the nature and extent of all releases, 5) Developing and screening remedial alternatives, performing treatability investigations, as required, 6) Determining the risks to human health or the environment posed by each release of hazardous substances, 7) Selecting and documenting remedies, and 8) Performing Interim Measures/Interim Remedial Actions (IM/IRAs), when required. These tasks shall be documented in various primary and secondary documents, as described in Table 4 of this SOW and in the Agreement. The timetables and deadlines for submittal of primary and secondary documents are presented within this SOW.

I.B.2. All individual hazardous substance sites (sites), defined as locations associated with a release or threat of release of hazardous substances which may cause harm to human health and/or the environment, and are known at the time of execution of this Agreement, are described in Table 1, Individual Hazardous Substance Sites[1]. Each of the previously identified

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[1] The definition and acknowledgement of these units as hazardous substance sites is a result of documentation submitted in: Appendix I, 3004(u) Waste Management Units, of the RCRA Part B Permit Application, Rev. No. 1, U.S.D.O.E. - Rocky Flats Plant, dated December 15, 1987 (Table 2 was revised by the Facility

sites described in Table 1 has been grouped into one of sixteen OUs, as described in Table 2 of this Attachment.

I.B.3. Notification. DOE shall notify EPA and the State of any newly identified or suspected releases or threats of release from any or all of the sites, including the presence of soil gas; air emissions; contaminated ground water, surface water, or soil; or any spills which may threaten human health or the environment. This notification shall be in accordance with all applicable laws including the notification requirements of RCRA, CERCLA, and the Emergency Planning and Community Right to Know Act. DOE shall amend the Historical Release Report identified in I.B.5. below every three months to include the newly identified or suspected releases for which DOE has notified EPA and the State during the previous 3 months. Whenever a newly identified or suspected release of hazardous substance occurs or is discovered, it may be added to one of the sixteen existing OUs or it may become another OU, as agreed to by the Parties to the Agreement. RFI/RI Workplans shall be submitted or amended to reflect the incorporation of a newly identified release or suspected release into the Site investigation.

I.B.4. Review and Comment on Draft and Final Reports. Whenever DOE prepares a document for submittal in accordance with the terms of this Agreement, the document shall be submitted to both EPA and the State. DOE shall complete and transmit each draft and final primary and secondary document to EPA and the State on or before the corresponding deadline established within this Agreement for issuance of each report. The Lead Regulatory Agency (LRA), or both EPA and the State in the case of joint lead OUs, shall consolidate all regulatory agency comments and shall submit them to DOE in accordance with paragraph 144 of the Agreement. Review of any document by the Lead Regulatory Agency (LRA) and Support Regulatory Agency (SRA), or EPA and the State in the case of joint lead OUs, 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

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(Rev. No. 2) and is dated April 13, 1988); Appendix I, 3004(u) Waste Management Units, of the Transuranic Mixed Wastes RCRA Part B Permit Application, dated July 1, 1988; and the Comprehensive Environmental Assessment and Response Program, Phase I.

consistency with RCRA, CERCLA, the NCP, and any applicable regulations, pertinent guidance or written policy. Comments shall be provided with adequate specificity so that DOE can make the necessary changes to the document. Comments shall refer to any pertinent sources of authority or references upon which the comments are based and, upon request of the DOE, the commenting agency shall provide a copy of the cited authority or reference.

Representatives of DOE shall make themselves readily available to EPA and/or the State during the comment period for the purposes of informally responding to questions and comments. Oral comments made during these discussions generally shall not require a written response by DOE.

Within 60 days of receiving written comments from the LRA, or EPA and the State in the case of joint lead OUs, DOE shall update the document and/or respond formally to the comments, through a written response or updated document. The updated document or response by DOE shall address all written comments. Upon receiving the updated document or responses to the comments, the LRA or EPA and the State in the case of a joint lead OU, shall evaluate the updated document and/or the response, and notify DOE of approval or disapproval of the updated document or response, and whether DOE is in compliance with the terms of the Agreement. All reviews, comments, and determinations made by EPA and the State shall be in writing and shall be directed to the person identified in Part 35 of the Agreement to receive the notification.

If the LRA, or EPA and the State in the case of a joint lead OU, determines that the response by DOE to the written documents and/or the updated document is complete, or only minor modifications are necessary, DOE shall be notified in writing. If the LRA, or EPA and the State in the case of a joint lead OU, determines that the response by DOE to the written documents and/or the updated document is incomplete or inadequate, DOE shall be notified in writing. If such updated document or response is a final primary document, the decision is subject to dispute resolution. Decisions regarding secondary documents are not subject to dispute resolution, but deficiencies in secondary documents must be corrected prior to incorporating the secondary document into a primary Submittal.

Table 4 of this Attachment lists the primary and

secondary documents to be submitted in accordance with this Agreement. Only Final Reports or final revisions of the primary documents identified within Table 4 shall be subject to dispute resolution. DOE shall complete and submit all primary documents in accordance with the schedules within Table 6 of this Attachment.

I.B.5. Historical Release Report. DOE shall submit a Historical Release Report within 465 days of the effective date of this Agreement. This report shall provide a complete listing of all spills, releases and/or incidents involving hazardous substances occurring since the inception of the Rocky Flats Plant in 1951 and all spills, releases, and/or incidents requiring implementation of the contingency plan, the notification requirements of 40 CFR 265.56, 6CCR 1007-3, 265.56, or as required by the Community Right to Know Act. The listing shall be accompanied by complete documentation of the events including the description of the events, complete physical and chemical description of the constituents released, responses to the events and the fate of the constituents released into the environment. This information will be utilized by EPA and the State to determine if any of these sites are individual hazardous substance sites and to evaluate the need for initiating RCRA Facility Investigations/Remedial Investigations (RFI/RI) for any and/or all of the events. After review of the initial Historical Release Report and any subsequent amendments provided through the process described in I.B.3. above, EPA and the State shall notify DOE of the requirement to initiate the RFI/RI(s). If EPA and the State decide that an RFI/RI is required for a newly identified site, DOE shall be required to submit a Phase I RFI/RI Workplan for that site in accordance with Section VI.A. of this Attachment, or amend an existing OU RFI/RI Workplan to address the newly identified site. DOE shall also identify any additional sites meeting the definition of an individual hazardous substance site, herein referred to as "site", not identified above.

I.B.6. As discussed in paragraph 141 of the Agreement, EPA and the State shall designate Lead and Support Regulatory Agencies for purposes of increased efficiency in the oversight of response activities covered by this Agreement. In some cases, where agreed upon by EPA and the State, both agencies may jointly serve as Lead Regulatory Agency. In these instances, it shall also be agreed between EPA and the State, which agency shall serve as the final decision maker for the purposes of resolving disputes. The designation for the currently known releases is described in Table 3.

I.B.7. For each OU as provided in more detail below, DOE shall characterize the area associated with each OU, and determine the nature and extent of contamination, pursuant to a Workplan submitted to and approved by EPA and the State. The characterization and determination of nature and extent of contamination shall become part of a RCRA Facility Investigation/Remedial Investigation (RFI/RI). DOE shall complete and submit Baseline Risk Assessments (RA) and shall also conduct Treatability Studies, and Corrective Measures/Feasibility Studies (CMS/FS) as required by EPA and/or the State. In accordance with the provisions within paragraph 156 of this Agreement, DOE and EPA in consultation with the State, and the State in consultation with EPA, shall select the appropriate Remedial and Corrective Actions respectively.

I.B.8. Project Scoping. Prior to the development and submittal of the RFI/RI Workplans for each OU, DOE may request a meeting to be held between EPA, the State and DOE in order to preliminarily coordinate the requirements of the RCRA Facility Investigation guidance documents with those requirements specified within the Remedial Investigation guidance. The purpose of the meeting is to discuss the requirements and agree on the content of the RFI/RI Workplans to be submitted for each OU. At the meeting, EPA and the State shall inform DOE of the specific requirements to be addressed within the RFI/RI Workplans. Following notification, DOE shall develop and submit as a chapter of the RFI/RI Workplans, potential remedial action objectives, preliminary applicable or relevant and appropriate requirements (ARARs), and potential data quality objectives.

I.B.9. Investigatory Phase Documentation. It is intended that each OU shall proceed through serial phases of investigation dependent on the information gathered to characterize each OU. OU 1 has progressed through two phases of investigation prior to the finalization of this Agreement. OU 2 has progressed through one phase of investigation prior to the finalization of this Agreement. Pursuant to this Agreement, OUs 3 - 16 have not undergone Phase I field investigation.

For OUs 3 - 16, DOE shall submit draft Phase I RFI/RI Workplans in accordance with the requirements for RFI/RI Workplans specified below. For OUs 1 and 2, DOE shall submit draft Phase III and draft Phase II RFI/RI Workplans, respectively, in accordance with the requirements for RFI/RI Workplans specified below and

to address the comments provided to DOE by EPA and the State regarding the previous RFI/RI submittals for these OUs.

The draft RFI/RI Workplans for all OUs shall be submitted to EPA and the State for review and comment. DOE shall revise the draft RFI/RI Workplans to address all comments submitted by EPA and the State, and resubmit the RFI/RI Workplans to EPA and the State for review and joint written approval. DOE shall not commence any work or response activity prior to receiving the appropriate approvals from EPA and the State. The EPA and the State approved RFI/RI Workplans shall be submitted in accordance with the schedules within Table 6 of this Attachment. The approved RFI/RI Workplans shall, at a minimum, implement the activities required in Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites. The work performed as a result of the approval of the RFI/RI Workplans shall be completed, documented and submitted in accordance with the schedule requirements stipulated within Table 6 of this Attachment.

The results of the Phase I RFI/RI work, for OUs 3 - 16, shall be documented within draft Phase I RFI/RI Reports. The results of the Phase III and Phase II RFI/RI work, for OUs 1 and 2, shall be documented within draft Phase III and draft Phase II RFI/RI Reports, respectively. For each OU, the draft RFI/RI Reports shall include a Preliminary Site Characterization, containing information, which is, at a minimum, in accordance with section VII.A. below. Subsequent phases of RFI/RI Workplans for all OUs shall be reviewed and approved consistent with the process identified above for Phase I RFI/RI Workplans.

The draft Phase I RFI/RI Reports for OUs 3 - 16 shall also recommend work to be performed for each Phase II investigation. EPA and the State shall review these draft Phase I RFI/RI Reports for OUs 3 - 16 in accordance with the provisions of paragraphs 144 and 145 of the Agreement. DOE shall revise the draft Phase I RFI/RI Reports for OUs 3 - 16 to address the comments received from EPA and/or the State, and resubmit Final Phase I RFI/RI Reports for EPA and/or the State review and approval. DOE shall not commence the next investigatory phase prior to receiving approval of the Final Phase I Reports for OUs 3 - 16 and approval of Phase II RFI/RI Workplans. The Phase II RFI/RI investigations for the sites within OUs 4, 7, 9, 10, and 11 shall be conducted in accordance with the schedules within Table 6 of this Attachment and in

accordance with section I.B.11.b. of this Attachment. The Phase II RFI/RI investigations for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16 shall be prioritized, scheduled and conducted after evaluation of the Final Phase I RFI/RI Reports for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, as specified within section VII.B. of this Attachment. If EPA and/or the State determine that no further investigatory work is required for each OU within OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16 after the Phase I investigation is complete, EPA and/or the State shall approve the Final Phase I RFI/RI Report as a Final RFI/RI Report for that specific OU. The investigatory phase for each OU within OUs 3 - 16 shall be considered complete after approval of a Final RFI/RI Report.

The draft Phase III and Phase II RFI/RI Reports for OUs 1 and 2 respectively shall be submitted for EPA and State review and comment. If EPA and the State determine that no further investigatory work is required, DOE shall revise the reports to address the comments received and shall submit the Final Phase III and Phase II RFI/RI Reports to EPA and the State for review and approval as Final RFI/RI Reports. If EPA and the State determine that further investigatory work is required, DOE shall not commence the next investigatory phase prior to receiving EPA and State comments concerning the draft Phase III and draft Phase II RFI/RI Reports for OUs 1 and 2, respectively, and receipt of approval for the next phase of the RFI/RI Workplans for OUs 1 and 2. The investigatory phases for OUs 1 and 2 shall be considered complete after approval of Final RFI/RI Reports for OU 1 and for OU 2.

Alternatives Analysis Documentation. For each OU, DOE shall submit a draft Corrective Measures Study/Feasibility Study (CMS/FS) Report in accordance with the schedule requirements stipulated within Table 6 of this Attachment, or within 90 days of EPA and/or State approval of the Final RFI/RI for each OU, in the event the submittal date is not specified within Table 6 of this Attachment. The reports shall contain all information as outlined in section IX. below. The draft CMS/FS Report for each OU shall be submitted for review and comment by EPA and/or the State. DOE shall revise the draft reports for each OU to address the comments received and shall resubmit Final CMS/FS Reports for EPA and/or State review and approval. The alternative analysis phase of each investigation shall not be complete prior to approval of a Final CMS/FS Report.

Remedy Selection Documentation. DOE shall submit a draft Proposed Plan (PP) for EPA and/or the State review and comment simultaneously with the submittal of the Final CMS/FS Report. After receiving and addressing comments from EPA and/or the State on the draft Proposed Plan, DOE shall respond formally to the EPA and State comments prior to issuance of the final Proposed Plan. EPA and State comments must be summarized in the final Proposed Plan and DOE must also summarize responses to those comments in the final Proposed Plan. The EPA and State comments and DOE responses to comments must be placed in the Administrative Record and incorporated in the final Proposed Plan prior to the public comment period. DOE shall subsequently submit the final Proposed Plan for EPA, State and public comment. The final Proposed Plan shall be submitted in accordance with the schedules within Table 6 of this Attachment, or within 60 days of receipt of comments from EPA and the State on the draft Proposed Plan, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. Concurrently, the State shall prepare a proposed RCRA permit modification and open a public comment period. DOE shall submit a draft Responsiveness Summary for each OU, in accordance with the schedules within Table 6 of this Attachment or within 60 days of the end of the public comment period, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, for EPA and/or State review and comment. DOE shall submit the Final Responsiveness Summary simultaneously with a draft Corrective Action Decision/Record of Decision (CAD/ROD) for EPA and State approval in accordance with the schedules within Table 6 of this Attachment or within 60 days of receipt of EPA and/or State comments on the draft Responsiveness Summary for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. Upon modification of the State RCRA permit and approval of the draft CAD/ROD in accordance with paragraph 156 of this Agreement, DOE shall implement the Corrective Action/Remedial Action (CA/RA) for each OU in accordance with section XIV of this Attachment.

I.B.10. Interim Measures/Interim Remedial Actions. For emergency removals that require response activities to begin onsite within several hours of discovery, DOE shall notify EPA and the State as soon as possible, but no later than 12 hours after discovery of the release or threat of release requiring emergency response. For those emergency removals that require activities to begin onsite within several hours of discovery, DOE shall coordinate the emergency removal action taken with EPA and the State.

All other expedited response actions contemplated by

DOE shall be addressed as Interim Measures/Interim Remedial Actions (IM/IRAs) pursuant to paragraphs 15 and 150 of this Agreement, and consistent with guidance for implementing interim actions under remedial authority provided in the preamble to the NCP (55 FR 8704, March 8, 1990). For the purposes of the guidance cited above, the IM/IRA Final Decision Document shall be considered the equivalent of a Record of Decision. IM/IRAs shall, to the greatest extent practicable, be consistent with and contribute to the efficient performance of final response actions consistent with sections 104 and 121 of CERCLA. IM/IRAs shall include provisions which will eliminate, or minimize to the extent possible, the spread of contaminants or resuspension of contaminants as a result of implementing the IM/IRA. DOE shall prepare and submit a draft Proposed IM/IRA Decision Document for EPA and the State review and comment. As a chapter of the draft Proposed IM/IRA Decision Document, DOE shall provide to EPA and the State a draft ARAR Analysis. After receiving and addressing comments from EPA and/or the State on the draft Proposed IM/IRA Decision Document, DOE shall respond formally to the EPA and State comments prior to submittal of the Proposed IM/IRA Decision Document. EPA and State comments and DOE responses to these comments must be summarized in the Proposed IM/IRA Decision Document. The EPA and State comments and DOE responses to comments must be placed in the Administrative Record and incorporated in the Proposed IM/IRA Decision Document prior to submittal of the Proposed IM/IRA Decision Document for public comment. DOE shall subsequently submit a Proposed IM/IRA Decision Document for EPA, State and public comment. DOE shall open a public comment period in accordance with applicable schedules within Table 6 of this Attachment. The public comment period on the Proposed IM/IRA Decision Document shall be at least 60 days. DOE shall hold a public hearing on each Proposed IM/IRA Decision Document, if requested to do so by the public, EPA or the State. The Proposed IM/IRA Decision Document shall be a concise document that (a) indicates the objective of the IM/IRA; (b) discusses alternatives, if any, that were considered; (c) provides the rationale for the alternative selected; (d) presents EPA approved ARAR analyses and; (e) discusses how the interim remedy selected will be consistent with the final remedy for the OU. After receipt of EPA, State and/or public comments concerning the Proposed IM/IRA Decision Document, DOE shall prepare a Final IM/IRA Decision Document for EPA and State review and approval in accordance with paragraph 150 of this Agreement, which shall include a response

to all comments received. DOE shall not commence any remedial/corrective activities associated with an IM/IRA until EPA and the State have approved the Final IM/IRA Decision Document and Responsiveness Summary. DOE shall make the EPA and State approved Final IM/IRA Decision Document and Responsiveness Summary available to all interested parties 10 days prior to commencing any field remedial/corrective activities associated with the IM/IRA.

The Final Decision Document for each IM/IRA shall include deadlines for implementation of the IM/IRA and shall be supported by the Administrative Record. The supporting Administrative Record shall be consistent with CERCLA and shall include, but not be limited to, significant facts and studies supporting the initial decision to conduct the IM/IRA, all comments received concerning the final decision on the action, EPA and State comments concerning the IM/IRA, and the DOE response to those comments.

Following completion of the design work specified in an IM/IRA Decision Document, DOE shall issue an IM/IRA Implementation Document, that shall include the appropriate drawings and specifications and the appropriate design analysis and cost estimate for implementation of the IM/IRA. The IM/IRA Implementation Document shall provide design documents consistent with the purpose and requirements of the Final IM/IRA Decision Document. If either EPA or the State believes that any IM/IRA is being designed or implemented in a way that will not meet the objectives for the IM/IRA set forth in the Final IM/IRA Decision Document, EPA and the State shall recommend how the IM/IRA should be properly designed and implemented or shall invoke dispute resolution.

DOE shall keep EPA and the State apprised of the progress of the activities required for implementation of the IM/IRA, through inclusion in the monthly progress reports to be submitted to EPA and the State, pursuant to Part 34 of the Agreement. The monthly progress reports shall provide information regarding status of work performed during the previous month, consisting of action specific details including, but not limited to; number of wells drilled, samples taken, status of construction work for all remedial/corrective actions taken, problems encountered and their resolution, status of analytical results, and results of environmental monitoring related to remedial/corrective action.

If EPA and the State determine that an IM/IRA will not fully address the threat posed by a release and further response is required, DOE shall ensure an orderly transition from the IM/IRA to final response actions. At the time of implementation of the final response action(s), IM/IRAs shall either end or be incorporated as part of the final response action.

I.B.11. Administrative Process for CHWA/RCRA Interim Status Closures.

I.B.11.a. Interim status closure units inside buildings (OU 15).

DOE shall submit closure plans to the State for all interim status units undergoing closure within buildings in accordance with the CHWA, 6 CCR 1007-3, Part 265. Closure of these units shall proceed in accordance with these regulations and the approved closure plans.

For all interim status units undergoing closure within buildings, DOE shall also submit a Phase I RFI/RI Workplan to EPA and the State for review, comment and approval in accordance with section I.B.9. of this attachment. The RFI/RI Workplan shall specify the activities required to characterize the nature and extent of contamination at, or resulting from, each unit, in accordance with section VI of this attachment.

DOE shall submit a Phase I RFI/RI Report to EPA and the State for review, comment and approval in accordance with section I.B.9. of this attachment. The RFI/RI Report shall provide adequate documentation concerning the nature and extent of the contamination at, or from each interim status closure unit within OU 15. The RFI/RI Report shall contain sufficient information for EPA and the State to determine the need for further action at any of the interim status closure units within buildings as addressed within OU 15.

If for all interim status closure units inside of a building, EPA and the State determine that: 1) there has not been a release of hazardous constituents or hazardous substances to the environment external to the unit, and 2) that there is no threat of post-closure escape of hazardous waste, hazardous constituents, leachates, run-off, hazardous waste decomposition products or hazardous substances, then EPA and the

State will require no further action at OU 15.

If, for any interim status closure unit inside of a building, EPA and the State determine that: 1) there has been a release of hazardous constituents or hazardous substances to the environment external to the unit, or 2) that there is threat of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, hazardous waste decomposition products or hazardous substances, then further action may be required by EPA and the State at OU 15 through the investigatory and response processes described in sections I.B.9. and/or I.B.10 of this attachment, and/or through the CHWA.

I.B.11.b. Interim status closure units external to buildings (OUs 4, 7, 9, 10 and, 11) shall be addressed in two phases.

Phase I. For those interim status closure units external to buildings for which DOE has submitted Closure Plans, DOE shall resubmit and/or amend the source characterization sections of the Closure Plans as individual draft Phase I RFI/RI Workplans for review and comment by EPA and the State. DOE shall also submit OU specific draft Phase I RFI/RI Workplans for conducting field work necessary to characterize the sources of those sites for which DOE has not submitted interim status Closure Plans. DOE shall revise the draft Phase I RFI/RI Workplans to reflect comments submitted to DOE by the State, and shall resubmit the Phase I RFI/RI Workplans for joint approval by EPA and the State in accordance with the schedule set forth within Table 6 of this Attachment. The work required within each approved Phase I RFI/RI Workplan shall be completed in accordance with schedules within Table 6 of this Attachment. The approved Phase I RFI/RI Workplans for interim status closure units external to buildings shall implement field work designed to characterize the sources/soils of each interim status unit, which shall provide the information necessary to determine the risk associated with the source of contamination at each interim status closure unit external to buildings. Draft Phase I RFI/RI Reports shall be submitted to EPA and the State for review and comment in accordance with the scheduled submittal dates stipulated within Table 6 of this Attachment. The draft Phase I RFI/RI Reports shall be used by the State to identify additional

work to be performed and shall provide information to support draft Baseline Risk Assessments to be submitted as a chapter of each draft Phase I RFI/RI Report for interim status closure units external to buildings. After revising the draft Phase I RFI/RI Reports to address all comments, DOE shall submit a Phase I RFI/RI Report for each interim status closure unit external to buildings to the State for review and approval.

Subsequent to approval by the State of the Final Phase I RFI/RI Reports for OUs 4, 7, 9, 10 and, 11, DOE shall submit draft Proposed Phase I IM/IRA Decision Documents for review and comment by EPA and the State. The draft Proposed Phase I IM/IRA Decision Documents shall be prepared in accordance with paragraphs 15 and 150 of this Agreement, and consistent with guidance for implementing interim actions under remedial authority provided in the preamble to the NCP (55 FR 8704, March 8, 1990) and the CHWA Closure requirements. The draft Proposed Phase I IM/IRA Decision Documents shall provide the information required to recommend an alternative consistent with the States closure regulations. The draft Proposed Phase I IM/IRA Decision Document shall address all hazardous substance source areas with risk levels greater than 10^{-6} evaluated at the source, and shall require the cleanup of all source areas exhibiting risk levels greater than 10^{-6} evaluated at the source. Following EPA and State review and comment on the draft Proposed Phase I IM/IRA Decision document, DOE shall incorporate EPA and State comments and shall submit a Proposed IM/IRA Decision document for EPA, State and public comment. The State shall concurrently open a public comment period for the Proposed IM/IRA Decision Document to satisfy the public comment requirements for draft closure plans. The comment period on the Proposed IM/IRA Decision Document shall be at least 60 days. DOE shall hold a public hearing on each Proposed IM/IRA Decision document, if requested to do so by the public, EPA or the State. The Proposed IM/IRA Decision document shall be a concise document that (a) indicates the objective of the IM/IRA; (b) discusses alternatives, if any, that were considered; (c) provides the rationale for the alternative selected and; (d) presents EPA approved ARAR analyses and; (e) discusses how the interim remedy selected will be consistent with the final remedy for the OU. After receipt of

EPA, State and/or public comments concerning the Proposed IM/IRA Decision document, DOE shall submit a Final IM/IRA Decision Document and Responsiveness Summary for EPA and State review and approval in accordance with paragraph 150 of this Agreement.

Phase II. In accordance with the schedules provided within Table 6 of this Attachment, DOE shall submit draft Phase II RFI/RI Workplans to EPA and the State for review and comment, to evaluate the nature and extent of contamination resulting from the release of hazardous substances from the interim status closure units external to buildings. DOE shall revise the draft Phase II RFI/RI Workplans in accordance with the comments received from EPA and the State, and shall resubmit the Final Phase II RFI/RI Workplans for EPA and the State review and approval in accordance with the schedules within Table 6 of this Attachment. The approved Final Phase II RFI/RI Workplans shall implement field work designed to evaluate the impact of each interim status closure unit on surface water, ground water, air, the environment and biota.

If the State, in consultation with EPA and DOE, determines that the Phase II RFI/RI for a specific interim status closure unit would be expedited or more efficiently conducted through incorporation into an investigation for another OU, then the State shall inform EPA and DOE that the Phase II investigation for the specific OU will be conducted through amending the affected OU Workplan. The CAD/ROD for the specific OU will reflect that the specific unit has been incorporated into another OU.

The draft Phase II RFI/RI Reports shall evaluate the IM/IRA implemented at each source, as appropriate, and shall include draft comprehensive Baseline Risk Assessments. The draft comprehensive Baseline Risk Assessments shall evaluate risk associated with both the sources and the resultant environmental contamination. The draft Phase II RFI/RI Reports shall be used by the State to evaluate the need for conducting further field work and shall provide the information to be used to support the draft Phase II CMS/FS Reports. If no further work is required by EPA or the State, the State shall approve the draft Phase II RFI/RI Reports as Final Phase II RFI/RI Reports

for the specific OU.

In accordance with the schedules within Table 6 of this Attachment, DOE shall submit the draft Phase II CMS/FS Reports for EPA and State review and comment. The draft Phase II CMS/FS Reports shall evaluate corrective/remedial measures to address both the sources and contamination resulting from the sources. DOE shall revise and submit the Phase II CMS/FS Reports for EPA and State review and approval in accordance with the schedules within Table 6 of this Attachment after addressing the comments received. If no further work or revision is required by EPA and the State, the Phase II CMS/FS Reports shall be approved as Final CMS/FS Reports for that specific OU. Remedy Selection subsequent to the completion of an EPA and State approved CMS/FS for each closure external to buildings shall proceed in accordance with the schedules within Table 6 of this Attachment and in accordance with the process specified in I.B.9. above.

II. Community Relations Plan (CRP). DOE shall submit a draft CRP according to the schedules within Table 6 of this Attachment to EPA and the State for review and joint approval. The CRP shall document the community relations history and issues of community concern. The CRP shall describe the techniques and procedures which shall be utilized by DOE to address community concerns and incorporate community involvement in all phases of the Site restoration process. The CRP shall include EPA and State approved mechanisms allowing non-confidential information generated by activities set forth in this Agreement to be readily available to the public. The CRP shall require DOE to notify the community when disputes between DOE, EPA and/or the State are taken to the SEC level for resolution. The CRP shall provide a mechanism for monthly progress reports submitted by DOE and oversight reports generated by EPA and the State, to be made available to the public. The CRP shall provide a mechanism for considering the public concerns regarding workplan development prior to finalization of the workplans. The CRP shall require DOE to make Responsiveness Summaries available to the public for review at least 10 days prior to the commencement of remedial/corrective action work and, at least at the same time as the final decision document. The CRP shall require that DOE news releases will be made available to interested parties at the same time as the news release is made available to the news media. The CRP shall provide a mechanism for DOE to notify the public of extensions and other changes to the schedules within the Agreement. The

CRP shall provide a mechanism for DOE to provide concise summaries of major activities to the public. DOE shall consider allowing editorials to be placed in informational materials generated by DOE concerning issues directly related to the activities governed by this Agreement as part of CRP development. Publishing periodic updates will be considered by DOE in development of the CRP. The CRP shall provide a mechanism for involving local governments in the cleanup process. The CRP shall delineate public comment opportunities. The CRP shall require DOE to provide public access to all non-confidential documents within the Administrative Record. DOE shall be required to interview community groups that focus on Rocky Flats environmental issues during the development of the CRP. The CRP shall provide a mechanism requiring DOE to make public meeting or hearing records available to the public. The CRP shall explore mechanisms to enhance public access to information within the public repositories. The CRP shall develop criteria for determining when and where public meetings will be held.

The CRP preparation methods, elements, and a recommended format shall be based on Community Relations in Superfund: A Handbook (U.S. EPA, Interim Final, June 1988). The CRP shall be periodically updated as required by CERCLA, the NCP, EPA national and regional policy and guidance. All DOE involvement in community relations shall be subject to oversight by the State and EPA.

II.A. Community Relations Activities

DOE shall, in consultation with EPA and the State, develop and implement a community relations plan responding to public concerns and interests as identified through community outreach, public comment on this Agreement, and/or community interviews. The activities to be conducted under this plan, at a minimum, shall be those set forth in CERCLA, the NCP, and national and regional EPA guidance and policy.

II.A.1. Public Repositories

Information shall be made readily available to the public to ensure meaningful participation. One mechanism for accomplishing this goal is the establishment of public information repositories. Locations of the repositories shall, at a minimum, be as follows:

US/EPA Region VIII Library
999 18th St., Suite 215
Denver, CO 80202-2405

(303) 293-1444

Colorado Department of Health
4210 East 11th Avenue, Room 351
Denver, CO 80220
(303) 331-4830

Rocky Flats Environmental Monitoring Council
1536 Cole Blvd. Suite 150
Golden, CO 80401
(303) 232-1966

Front Range Community College Library
3645 West 112th Avenue
Westminster, CO 80030
(303) 469-4435

All documents as listed in Table 4 of this attachment shall be sent by DOE to the repositories at the time of document release. In addition, copies of documents when submitted for public comment shall be placed in repositories. Any additional information or documents shall be placed in repositories by DOE in a timely manner as deemed necessary by EPA, the State, and DOE.

II.A.2. Mailing Lists and Newsletter

DOE shall maintain a Rocky Flats mailing list. EPA, the State, or DOE may periodically distribute information in the form of a direct mailing to those persons on the DOE Rocky Flats mailing list. Any person may be placed on the Rocky Flats mailing list by contacting the community relations personnel for DOE.

A direct mailing may be in the form of a news release, fact sheet, or public information update. An update includes, but is not limited to, a summary of the status of completed, ongoing, or upcoming activities. In some instances, fact sheets or updates will be used in conjunction with a public notice (newspaper or radio) to announce an event such as a public meeting, a public hearing, or a formal comment period on a certain document.

II.A.3. News Releases

Except in the case of an emergency or the need for the public to receive information immediately, any party issuing a formal news release to the media regarding any of the work required by this Agreement shall advise the other parties of such news release and the contents thereof at least 48 hours before the issuance of such a

news release. The CRP shall provide a mechanism for making such news releases available to interested citizen groups in conjunction with release to the media.

II.A.4. Public Meetings

II.A.4.a. Regular Public Information Meetings

EPA, the State, and DOE shall conduct regular, at least quarterly, public information meetings. The format for these meetings will be established by EPA, the State and DOE. The meetings will update the public on significant CERCLA/RCRA permitting and cleanup activities. The meetings will also provide a forum for advising the public of anticipated upcoming events.

II.A.4.b. Other Public Meetings

Additional public meetings relating to progress and compliance with the Agreement will be scheduled on an as-needed basis, as determined by EPA or the State. Situations involving complex issues or a high level of public interest may require a separate public meeting.

At least one public meeting shall be held during the public comment period for each draft Proposed Plan and concomitant draft Permit (or permit modification). All public comments received on these documents, including those of the LRA and SRA, will be placed in the Administrative Record and will be sent to the public information repositories.

II.A.5. Public Notification, Location, and Records

DOE, at the request of EPA and/or the State, or as required by this Agreement, shall arrange for all public meetings and shall place a public notice display advertisement announcing the meeting in a newspaper of general circulation and a major radio station in the area where the meeting is to be held. DOE shall also distribute a direct mail notice to all persons on the Rocky Flats mailing list. All such notices shall be made at least 2 to 3 weeks prior to the date of the public meetings.

The location of each public meeting shall be decided by EPA, DOE and the State. Public

meetings shall be held at times and locations convenient to the public affected by the Rocky Flats Plant as determined through development of the CRP. In some cases, the agencies may decide to hold an additional public meeting on a subsequent day at another location.

DOE shall provide an individual to accurately record the events and dialogue at each public meeting. This individual shall provide a written record of the public meeting for review to EPA, State, and DOE project coordinators, and the community relations contacts within 14 days following the meeting. The meeting record will then be distributed to each of the public information repositories. Any individual may obtain a copy of the meeting record by submitting a request, in writing, to the DOE community relations contact.

II.A.6. Public Comment Opportunities

DOE, EPA and/or the State will make the documents as listed below available for public comment. These documents will be placed in the public information repositories.

- Draft Colorado Hazardous Waste Act/RCRA Permits for Treatment, Storage and, Disposal Units.
- Draft Hazardous and Solid Waste Amendment Act Permits for Corrective Action at Solid Waste Management Units.
- Closure Plans.
- Interim Measures and Interim Remedial Actions.
- Community Relations Plan.
- Final Proposed Plans.
- Plan for the Prevention of Contaminant Dispersion.
- Workplan Designed to Implement Discharge Limits for Radionuclides.

Copies of all public comments received and the agencies' responses to comments shall become part of the Administrative Record and shall be sent to the public information repositories listed above.

Additionally, copies of all public comments and agency responses shall be made available to any person upon written request to any of the community relations contacts within EPA, the State, or DOE. Copy charges may be required of persons interested in obtaining additional copies.

The public notice for availability of these documents for comment shall be published by DOE in a display advertisement in publications of general circulation as determined through development of the CRP and announced on a major radio station in the areas of significant public interest and through the direct mailing list.

II.A.7. Public Hearing Opportunities

Pursuant to State law, draft RCRA permits are subject to public hearings upon determination of a significant degree of public interest, receipt of a written notice of opposition, and a request for a public hearing, or as necessary to clarify permit decision issues in accordance with 6 CCR 1007-3, 100.508. Public notice for a public hearing shall be made at least 30 days before the hearing. Modifications to State RCRA Permits under 6 CCR 1007-3, 100.63 require public meetings to be held for class 2 or class 3 modifications. Public meetings must be held no earlier than 15 days after the opening of the public comment period and no later than 15 days before the end of the public comment period. Notice of the time, date and place of the public meeting will be included in the notice of public comment.

DOE shall, upon request, assist EPA and the State with public hearings in the same manner as with public meetings, as previously described. Transcripts of the public hearing shall be distributed in the same manner as those for the public meetings. Any individual may obtain a copy of the transcript by submitting a request, in writing, to the Community Relations Office for DOE. DOE shall be responsible for providing the transcript copies.

A public hearing shall be held at a location convenient to the nearest population centers, and determined by the State. Public meetings shall be held in the vicinity of the facility.

II.A.8. Technical Assistance Grants

The provision for Technical Assistance Grants (TAG) is found in Section 117(e) of CERCLA. The TAG is a mechanism by which the Federal government provides reimbursement to the public for a level of effort spent on CERCLA document review. In this way, the public can be directly involved in the review process of various CERCLA documents in more depth than otherwise might be possible. As of the date of execution of this Agreement, a TAG has been awarded to the Rocky Flats Clean-up Commission. DOE shall cooperate with the Rocky Flats Clean-up Commission by providing the information requested by that group as long as the information is not classified as identified in Part 47 of the Agreement.

III. Health and Safety Plan (HSP). DOE shall submit a HSP which will document specific health and safety procedures to be followed ensuring the health and safety of the investigative team and others (including the general public) during all phases of response actions. This HSP and all other pertinent documentation developed by DOE or its contractor defining work procedures and safety precautions to be taken during environmental investigations or response actions shall be distributed to all contractors or subcontractors involved in the investigations or response actions.

The HSP shall be submitted by DOE to EPA and the State for review and comment, within 30 days of the effective date of this Agreement. The plan shall support field efforts, conform to DOE's health and safety program(s) and be in compliance with OSHA. Specific information required in a Site HSP is listed in 29 CFR 1910.120 and shall at a minimum include: the names of key personnel responsible for Site safety and health; health and safety risk analyses for existing Site conditions, and for each type of Site task and operation; employee training assignments; descriptions of personnel protective equipment to be used by employees for each type of Site task and operation to be conducted; medical surveillance requirements; descriptions of the types and frequency of air monitoring, personnel monitoring and environmental sampling techniques and instrumentation to be used for each type of task and/or operation to be conducted; Site control measures; decontamination procedures; standard operating procedures for the Site; a contingency plan that meets the requirements of 29 CFR 1910.120(l)(1) and (l)(2); and entry procedures for confined spaces.

IV. Sampling and Analysis Plan (SAP). The SAP shall be submitted by DOE to EPA and the State for review and approval within 120 days of the effective date of this

Agreement. The SAP shall consist of two parts: a quality assurance project plan (QAPP) that describes the policy, organization, functional activities, and quality assurance protocols necessary to achieve the data quality objectives dictated by the intended use of the data for each OU; and standard operating procedures (SOP) which detail the field techniques to be utilized during the investigation of the Site, and provide guidance for the performance of all fieldwork. The SOP shall be written by DOE to reflect EPA guidance to ensure that work required by this Attachment is performed in accordance with EPA approved methods. The SOP shall provide a mechanism for planning and approving field activities.

IV.A. The QAPP shall consist of at least the following elements: project description; project organization and responsibilities; data quality objectives (DQOs); sampling procedures; detection limits; sample custody; calibration procedures; analytical procedures; data reduction, validation and reporting procedures; internal quality control and quality assurance procedures; performance and system audits; preventative maintenance requirements; data assessment procedures; corrective actions; and quality assurance reports (see Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final, October, 1988, Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAM-005/80, U.S. EPA, 1983, as amended, and OSWER Directive 9355.0-14, Quality Assurance/Field Operations Method Manual, April, 1986).

IV.B. The SOP shall describe in detail, specific sampling techniques for a given objective, sampling equipment and procedures and general sample handling and analysis procedures. The SOP shall incorporate the sampling objectives of the Workplan for each OU as required by this Attachment and Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites, and shall anticipate investigations beyond the work specified in this Attachment.

V. Plan for the Prevention of Contaminant Dispersion. In order to minimize the potential for windblown dispersion of dusts containing hazardous substances or other harmful materials from all sites, DOE shall within 180 days of the effective date of this Agreement, prepare and submit a plan to EPA and the State for joint approval. The Plan for the Prevention of Contaminant Dispersion shall provide for the management of wastes associated with sites in such a manner as to prevent windblowing of hazardous or dangerous materials through techniques such as soil cover over hazardous and dangerous

materials and/or use of appropriate wetting techniques during high wind conditions. High wind conditions are defined as winds blowing in excess of 15 mph or where visible particulate emissions leave the respective site(s).

DOE shall also include as part of the Plan, a proposal to evaluate the potential for and risk of windblown inorganic, radioactive and organic hazardous constituents released from sites at the Rocky Flats Plant. EPA and the State may require the installation of air monitoring systems for evaluating windblown releases from the sites, or require further corrective measures.

VI. RFI/RI Workplans. DOE shall prepare RFI/RI Workplans for each OU that assure that each site identified in Table 1 is fully characterized and that a Baseline Risk Assessment is performed, as set forth below. The Workplans shall implement as initial steps the measures provided for in Table 5 of this Attachment. The RFI/RI Workplans shall be submitted to EPA and the State in accordance with schedules within Table 6 of this Attachment. The RFI/RI Workplans required by this Agreement shall meet the requirements as outlined in Section VI.B. of this Attachment and shall be implemented immediately upon joint approval by EPA and the State.

VI.A. DOE shall prepare or amend RFI/RI Workplans to ensure that each spill and/or release described within the Historical Release Report, and within any amendments to the Historical Release Report, and identified by EPA and the State as requiring an RFI/RI, is investigated to establish site characteristics and nature and extent of contamination as set forth below. EPA and the State shall review the Historical Release Report as required in paragraph I.B.5. above and shall notify DOE in writing that an RFI/RI Workplan is required. DOE shall submit the RFI/RI Workplan(s) to EPA and the State for review and approval as required by EPA and the State. The RFI/RI Workplan(s) required by this condition shall meet the requirements as outlined in section VI.B. of this Attachment and shall be implemented as required through the written approval by EPA and the State.

VI.B. DOE shall develop RFI/RI Workplans for those sites as specified in Sections VI. and VI.A. above. The Workplans shall include a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at each site. The plans shall also include a conceptual "model" describing the contaminant sources, and potential migration and exposure pathways and receptors. In addition, the

plans will include a description of each site investigation and management strategy developed by DOE during scoping; a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plans will reflect coordination with the treatability study requirements as outlined in this Attachment, and any additional treatability studies required through the CMS/FS process. The plans shall include processes, schedules for, and manner of, identifying Federal and State requirements (chemical-specific, location-specific, and action specific applicable or relevant and appropriate requirements) (ARARs).

The Workplans shall include detailed descriptions of the tasks to be performed, information needed for each task (e.g., for health and environmental risk evaluation), information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA and the State. The RFI/RI Workplans shall include a Field Sampling Plan (FSP) which shall describe in detail, specific OU background information, sampling objectives for each site within each OU, sample location, and minimum frequency for each task and/or operation for a given objective, sample designation procedures, sampling equipment and procedures and sample handling and analysis protocol. The FSP shall incorporate the sampling objectives of Table 5, and shall anticipate investigations beyond the work specified in this Attachment. DOE will refer to Appendix B of the October 1988 Interim Final RI/FS Guidance for a comprehensive description of the contents of the required Workplans.

Because of the unknown nature of many of the sites and the iterative nature of the RFI/RI and CMS/FS, additional data requirements and analyses may be identified throughout the process. DOE shall submit technical memorandums to EPA and the State documenting the need for additional data, and identifying the data quality objectives (DQOs) whenever such requirements are identified. These technical memorandums shall be attached as an amendment to the approved Workplans for each OU after approval by EPA and the State. In any event, DOE is responsible for fulfilling additional data and analysis needs identified by EPA and the State, consistent with the general scope and objectives of each RFI/RI and CMS/FS. The Workplans shall provide for the activities in subparagraphs VI.B.1.- VI.B.5.b. below.

VI.B.1. <u>Investigate and define site physical characteristics.</u>

DOE shall collect data on the physical characteristics of each site and its surrounding areas including the physiography, geology, and hydrology, and specific physical characteristics identified in the Workplans. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and shall be utilized to define potential transport pathways and receptor populations. In defining each site's physical characteristics, DOE shall also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and the development and screening of corrective/remedial action alternatives, including information to assess treatment technologies.

VI.B.2. Define sources of contamination. DOE shall locate each source of contamination. For each location, the areal extent and depth of contamination shall be determined by sampling at incremental depths of a sampling grid. The physical characteristics and chemical constituents and their concentrations shall be determined for all known and discovered sources of contamination. DOE shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs. Defining the source of contamination shall include analyzing the potential for contaminant releases (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating corrective/remedial actions, including information to assess treatment technologies.

VI.B.3. Describe the nature and extent of contamination. DOE shall gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, DOE shall utilize the information on each site's physical characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. DOE shall then implement an iterative monitoring program and any study program identified in the Workplan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at each site can be determined. In addition, DOE shall gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. Information on the nature and extent of contamination shall be utilized to determine the level of risk

presented by each site and shall help to determine aspects of the appropriate remedial action alternatives to be evaluated.

VI.B.4. Evaluate site characteristics. DOE shall analyze and evaluate the data to describe: 1) each site's physical characteristics, 2) contaminant source characteristics and, 3) nature and extent of contamination, and 4) contaminant fate and transport. Results of each site's physical characteristics, source characteristics, and nature and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluations shall include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA and the State in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA and the State together with a sensitivity analysis. Also, this evaluation shall provide any information relevant to each site's characteristics necessary for evaluation of the need for Corrective/Remedial Action in the Baseline Risk Assessment and for the development and evaluation of remedial alternatives. Analyses of data collected for each site's characterization shall meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RFI/RI).

VI.B.5. Data Management Procedures. DOE shall consistently document the quality and validity of field and laboratory data compiled during the RFI/RI.

VI.B.5.a. Document field activities. Information gathered during each characterization shall be consistently documented and adequately recorded by DOE in well maintained field logs and laboratory reports. The method(s) of documentation shall be specified in the Workplans and/or the SAP. Field logs shall be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports shall document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

VI.B.5.b. Maintain sample management and tracking. DOE shall maintain field reports, sample shipment records, analytical results, and QA/QC reports to

ensure that only validated analytical data are reported and utilized in the development and evaluation of corrective/remedial alternatives. Analytical results developed under the Workplans shall not be included in any characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report which shall be submitted. In addition, DOE shall establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

VII. OU Characterization Deliverables. DOE shall prepare and submit Phase I RFI/RI Reports for OUs 3 - 16, including the Preliminary Site Characterization (PSC), the Phase III RFI/RI Report for OU 1, and the Phase II RFI/RI Report for OU 2, as required by the schedules within Table 6 of this Attachment. If further characterization of an OU is required by EPA and/or the State, additional phases of investigation shall be conducted by DOE. Once the Baseline Risk Assessment is completed for each OU and each OU has been characterized as approved, the Final RFI/RI Report for each OU shall be approved.

VII.A. Preliminary Site Characterization Summary. The Phase I RFI/RI Report(s) required for OUs 3 - 16 shall include a "Preliminary Site Characterization Summary" (PSC) as a chapter of the Phase I RFI/RI Reports. These PSC summaries shall present the investigative activities which have taken place, and describe and display OU data documenting the location and characteristics of surface and subsurface features and contamination at each site within each OU including the affected media, location of contaminants, types of contaminants, physical state of contaminants, concentration of contaminants and quantity of contaminants. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media shall be documented. The data developed for the PSC summary(s) shall be used by DOE to develop the Baseline Risk Assessment for each OU. The PSC summaries shall provide EPA and the State with a preliminary reference for evaluating the Baseline Risk Assessment for each OU, evaluating the development and screening of corrective/remedial alternatives and the determination and evaluation of ARARs. EPA and the State will evaluate these documents for adequacy, to direct DOE to conduct further investigation and to evaluate the Baseline Risk Assessments for each OU. The PSC summaries will also be used by EPA and the State to

initiate parallel Corrective Measures Studies/Feasibility Studies (CMS/FS) to be conducted by DOE and/or to effect Corrective/Remedial Action, including Interim Measures/Interim Remedial Actions, by DOE at each site or OU as EPA and the State deem appropriate. The initial investigations and submittals required by Table 5 and implemented through the Phase I RFI/RI Workplans to be submitted and approved are considered preliminary and shall not limit the EPA or the State from requiring DOE to conduct further activities pursuant to this Agreement. Such additional investigation or reporting shall not be considered a modification to this Agreement, but shall be considered part of the original requirements of this Agreement.

VII.B. Prioritization of OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. After DOE has completed all work stipulated within Table 5 as implemented through the EPA and the State approved Phase I Workplans, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, EPA and the State, in consultation with DOE, shall identify and prioritize the remaining work to be performed for the Site characterization. After EPA and the State have agreed upon priority for further investigation of OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, EPA and the State shall notify DOE of the Site characterization priorities within OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. Upon receipt of this notification, DOE shall have 30 days to submit a proposal for implementation of the EPA and the State determined priorities. EPA and the State shall review the proposal and determine adequacy. If the proposal by DOE is determined to be acceptable, EPA and the State shall approve the proposal. Within 60 days of approval of the DOE proposal by EPA and the State, DOE shall submit draft Phase II RFI/RI Workplans for each affected OU, for EPA and State review and comment. Within 60 days of receipt of EPA and/or State comments concerning the draft Phase II RFI/RI Workplans, DOE shall submit Final Phase II RFI/RI Workplans for EPA and State review and approval. The work required of DOE by EPA and the State, documented within the approved Final Phase II Workplans, shall be completed within the timeframes stipulated within the approved Final Phase II RFI/RI Workplans.

DOE shall submit draft Phase II RFI/RI Reports upon completion of the required work, and in accordance with the schedules within the approved Final Phase II RFI/RI Workplans, to reflect the EPA and the State requirements, for review and comment. EPA and the State shall continue to require DOE to submit subsequent phase Workplans to reflect EPA and State

requirements, as appropriate, until DOE has collected sufficient information pursuant to the RFI/RI Workplans to prepare the Final RFI/RI Reports for approval.

VII.C. RCRA Facility Investigation/Remedial Investigation (RFI/RI) Reports. DOE shall prepare and submit draft RFI/RI Reports to EPA and the State for review and comment, after completion of the required investigatory work, and in accordance with the schedules within Table 6 of this Attachment. The draft RFI/RI Reports shall include the draft Baseline Risk Assessments. These reports shall summarize results of field activities to characterize the sites, characterize sources of contamination, define the nature and extent of contamination, define the fate and transport of contaminants, characterize the environmental setting, identify areas threatened by releases from each site, determine the short and long-term threats to human health and the environment, and present the results of the draft Baseline Risk Assessments. DOE shall use the RCRA Facility Investigation Guidance, (Interim Final), May 1989 [or as amended], and the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final, October 1988, for an outline of the report format and contents. Following comment by EPA and the State on the draft RFI/RI Reports, and completion of all work required by EPA and/or the State, DOE shall prepare Final RFI/RI Reports for EPA and/or State review and approval, which address all comments.

VII.D. Baseline Risk Assessment. Baseline Risk Assessments shall be prepared for each OU and shall identify and characterize the toxicity and levels of all hazardous substances present, contaminant fate and transport, the potential for human and/or environmental exposure, and the risk of potential impacts or threats on human health and the environment. The Baseline Risk Assessments shall provide the basis for determining whether or not Corrective/Remedial Action is necessary, and a justification for performing Corrective/Remedial Actions. DOE shall use the procedures in EPA's Superfund Public Health Evaluation Manual (SPHEM), or superceding EPA documents to perform a Baseline Risk Assessment for human health and the environment. These procedures are outlined below and must be followed by DOE. Other resources to be used when performing the Baseline Risk Assessment include: EPA's Superfund Exposure Assessment Manual (SEAM), the Integrated Risk Information System (IRIS), the Public Health Risk Evaluation Database (PHRED), the Interim Final Risk Assessment Guidance for Superfund - Environmental

Evaluation Manual, and the Federal Register, Volume 52, Number 53, Thursday, March 19, 1987, pp. 8704 - 8709.

In the event EPA and the State determine that a Comprehensive Risk Assessment of the Site is required, as provided for in paragraph 154 of the Agreement, DOE shall submit the Comprehensive Risk Assessment for EPA and State review and approval, in accordance with submittal schedules agreed to by EPA, the State and DOE.

VII.D.1. Human Health and Risk Assessment Components. The health risk assessment process is divided into the four components listed below. During the scoping of the Baseline Risk Assessment, DOE shall discuss with EPA and the State the format of the Baseline Risk Assessment report as well as the references to be utilized during the Baseline Risk Assessment.

VII.D.1.a. Contaminant identification and documentation. DOE shall review the information that is available on the hazardous substances present at each site within an OU and shall identify the contaminants of concern. The indicator chemicals, or contaminants of concern, are not chosen solely on the basis of chemical-specific requirements. Rather, they are selected based on quantity, the concentration of contaminants at each site within an OU as compared to levels that pose a risk, or critical exposure pathways, such as drinking water. When selecting the indicator chemicals, DOE shall also consider the additive and synergistic effect of risks, to the extent possible. DOE shall submit to EPA and the State for review and approval a technical memorandum listing the hazardous substances present at each site or OU and the indicator chemicals to be evaluated with the known corresponding ambient concentrations of these contaminants. This memorandum shall be submitted prior to the required submittal of the Baseline Risk Assessment for each OU. Chemical-specific requirements shall also be identified at this time.

VII.D.1.b. Exposure assessment and documentation. Using the information in the SEAM, DOE shall identify actual and potential exposure points and pathways. Exposure assumptions must be supported with validated data and must be consistent with EPA and State policy. Data utilized shall be validated. For each exposure point, the release source, the

transport media (e.g., ground water, surface water, air) and the exposure route (oral, inhalation, dermal) shall be clearly delineated. The current number of people at each exposure point shall be estimated, and both sensitive and potentially exposed populations shall be characterized. Both present and future potential risks at each site and OU shall be considered, and both current and maximum reasonable use scenarios shall be considered, including evaluation of risk at the source. DOE shall submit for review and approval, a technical memorandum describing the present, future, potential and reasonable use exposure scenarios with a description of the assumptions made and the use of data. This memorandum shall be submitted prior to the required submittal of the Baseline Risk Assessment for each OU. In addition, DOE shall submit for review and approval a description of the fate and transport models that will be utilized, including a summary of the data that will be used with these models. Representative data shall be utilized and the limitations, assumptions and uncertainties associated with the models shall be documented.

VII.D.1.c. Toxicity assessment and documentation. DOE shall utilize the information in IRIS to provide a toxicity assessment of the indicator chemicals. This assessment shall include the types of adverse health and/or environmental affects associated with chemical exposures (including potential carcinogenicity), the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., the weight of evidence for a chemical's carcinogenicity). For those substances lacking an EPA toxicity value for which DOE wishes to develop its own toxicity value, DOE shall submit for review and approval a technical memorandum listing the toxicological and epidemiological studies that will be utilized to perform the toxicity assessment. This memorandum shall be submitted prior to the required submittal of the Baseline Risk Assessment. All data utilized in the toxicity assessment must be validated and go through EPA and the State review.

VII.D.1.d. Risk Characterization. DOE shall integrate the ambient concentrations and reasonable worst case assumptions with the information developed during the exposure and toxicity assessments, to characterize the current and potential risk to

human health and the environment posed by each site or OU. This risk characterization must identify any uncertainties associated with contaminants, toxicities, and/or exposure assumptions.

VIII. Baseline Risk Assessment Deliverables. DOE shall prepare the individual technical memoranda listed in paragraph VII.D.1.a., and VII.D.1.c., or one consolidated technical memorandum addressing all components listed above, which shall be incorporated into this Agreement by reference when approved. The Baseline Risk Assessment reports shall be submitted with the RFI/RI reports, as required above.

VIII.A. Baseline Risk Assessment Chapter of the RFI/RI Report. The draft reports shall include a comprehensive description of the four components of the risk assessment and shall follow the principles established in the SPHEM. A discussion of sources of uncertainty, data gaps, incomplete toxicity information, and modeling characteristics, limitations and assumptions must be included. DOE shall refer to the SPHEM for an outline of the report format.

VIII.B. Environmental Evaluation and Deliverables. In addition to the human health risk assessment, the risks to the environment from exposure to the contaminants shall be addressed.

VIII.C. Environmental Evaluation Plan. DOE shall submit a plan for the evaluation of the environmental risk, within each OU RFI/RI Workplan. This plan shall specify the objectives of the evaluation and the information necessary to adequately characterize the nature and extent of environmental risk or threat resulting from each site and OU. At a minimum, this plan shall demonstrate how the environmental evaluation will address: 1) any critical habitats affected by site contamination; and 2) any endangered species or habitats of endangered species affected by the contamination. DOE shall utilize the Interim Final Risk Assessment Guidance for Superfund - Environmental Evaluation Manual in preparing this plan.

VIII.D. Environmental Evaluation Report. An environmental evaluation report shall be submitted to EPA and the State, as a chapter of the Baseline Risk Assessment for each OU. This evaluation shall be included in the draft Baseline Risk Assessment reports as a chapter separate from the human health risk assessment. At a minimum, the environmental evaluation report shall include an assessment of any critical habitats, and any

endangered species or habitats of endangered species affected by the contamination.

IX. Development and Screening of Corrective/Remedial Alternatives (CMS/FS). DOE shall submit a draft CMS/FS for each OU, in accordance with the schedules provided within Table 6 of this Attachment, or within 90 days of approval of the Final RFI/RI, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. The studies shall include the analyses identified below and shall be submitted to EPA and the State for review and comment. The draft CMS/FS Report(s) shall identify the ARARs which will be utilized to evaluate and select the Corrective/Remedial Action at each OU and/or site within an OU. The draft CMS/FS shall also contain projected time schedules for implementation and completion of actions and for interim milestone activities, if these timetables are not already specified. If the time necessary for implementation exceeds one [1] year the schedule shall specify interim dates for submission of interim deliverables. A draft CMS/FS may be submitted with the Final RFI/RI Reports for each OU in order to expedite the review of the CMS/FS Reports.

IX.A. For each OU, or as approved, an individual site within an OU, that is required to be the subject of a CMS/FS, DOE shall perform the activities in this section IX.A. through IX.D., as required by paragraph 153 of this Agreement. The development and screening of corrective/remedial alternatives shall consider an appropriate range of Corrective/Remedial Action options to evaluate. The range of alternatives shall include, at a minimum: options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but which vary in the types of treatment, the amount of wastes treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. DOE shall develop and evaluate a range of appropriate Corrective/Remedial Action options that, at a minimum, ensures protection of human health and the environment. The following activities shall be performed by DOE as a function of the development and screening of corrective/remedial alternatives.

IX.A.1. Refine and Document Corrective/Remedial Action Objectives. DOE shall propose and, if necessary, refine the specific Corrective/Remedial Action objectives. The revised Corrective/Remedial

Action objectives shall be documented in a technical memorandum to be submitted to EPA and/or the State for review. These objectives shall specify the contaminants and media of interest, exposure pathways and receptors, and EPA and State accepted levels or ranges of levels for each exposure route.

IX.A.2. Develop General Response Actions. DOE shall develop general response actions for each medium of interest defining containment, treatment, excavation, pumping or other actions, singly or in combination, to satisfy the Corrective/Remedial Action objectives.

IX.A.3. Identify Areas or Volumes of Media. DOE shall identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the Corrective/Remedial Action objectives. The chemical and physical characterization of each site and OU shall also be taken into account.

IX.A.4. Identify, Screen, and Document Corrective/Remedial Technologies. DOE shall identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at each site or OU. General response actions shall be refined to specify corrective/remedial technology types. Technology process options for each of the technology types shall be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Studies in Section XI. shall be taken into account. Process options shall be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options shall be summarized for inclusion in a technical memorandum to be submitted to EPA and/or the State. The reasons for eliminating alternatives must be specified.

IX.A.5. Assemble and Document Alternatives. DOE shall assemble selected representative technologies into alternatives for each affected medium or OU. Together, all of the alternatives shall represent a range of treatment and containment combinations that will address either each site or an OU as a

whole. A summary of the assembled alternatives and their related action-specific ARARs shall be prepared by DOE for inclusion in a technical memorandum to be submitted to EPA and/or the State for review. The reasons for eliminating alternatives during the preliminary screening process must be specified.

IX.A.6. Refine Alternatives. DOE shall refine the corrective/remedial alternatives to identify the contaminant volume addressed by the proposed process and the sizing of critical unit operations, as necessary. Sufficient information shall be collected for an adequate comparison of alternatives. Corrective/Remedial Action objectives for each medium shall also be refined, as necessary, to incorporate any new risk assessment information being generated from the Corrective/Remedial investigation. Additionally, action-specified ARARs shall be updated as the corrective/remedial alternatives are refined.

IX.A.7. Conduct and Document Screening Evaluation of Each Alternative. DOE may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives shall be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis.

As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. DOE shall prepare a technical memorandum to be submitted to EPA and/or the State for review, summarizing the results and reasoning employed in screening, arraying alternatives that remain after screening, and proposing the action-specific ARARs for the alternatives that remain after screening.

IX.B. Alternatives Development and Screening Deliverables. The technical memoranda required in sections IX.A.1. - IX.A.7. above may be submitted to EPA and the State as individual memoranda or as one consolidated memorandum, prior to the required submittal date of each OU

specific draft CMS/FS Report. DOE shall prepare these memoranda to summarize the work performed in and the results of each task above, including an alternatives array summary. These shall be modified by DOE, if required by EPA or State comments, to assure identification of a complete and appropriate range of viable alternatives which are considered in the detailed analysis. This deliverable shall document the methods, rationale, and results of the alternatives screening process.

IX.C. Detailed Analysis of Remedial Alternatives (CMS/FS). The detailed analysis shall be conducted by DOE to provide EPA and the State with the information needed to allow for the selection of a remedy. This analysis is the final task to be performed by DOE during the CMS/FS.

IX.C.1. Detailed Analysis of Alternatives. DOE shall conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

IX.C.2. Apply Nine Criteria and Document Analysis. DOE shall apply nine evaluation criteria to the assembled corrective/remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, of resource recovery technologies, to the maximum extent practicable; and will address the preference for treatment as a principal element. The nine evaluation criteria to be used are: 1) overall protection of human health and the environment, taking into account relevant and appropriate requirements of CERCLA and RCRA and other federal and State health and environmental laws, rules, regulations and criteria; 2) compliance with other ARARs; 3) long-term effectiveness and permanence; 4) reduction of toxicity, mobility, or volume; 5) short-term effectiveness; 6) implementability; 7) cost; 8) State (or support agency) acceptance; and 9) community acceptance. (Note: criteria 9 is considered after the RFI/RI, CMS/FS reports have been released to the general public.) For each alternative, DOE shall provide: 1) a description of the alternative that outlines the waste management strategy involved and identifies the

key ARARs associated with each alternative, and 2) a discussion of the individual criterion assessment. Cost effectiveness shall not be a limiting factor in remedy selection until alternatives under consideration are determined to be equally protective.

IX.C.3. Compare Alternatives Against Each Other and Document the Comparison of Alternatives. DOE shall perform a comparative analysis between the corrective/remedial alternatives. That is, each alternative shall be compared against the others using the evaluation criteria as a basis of comparison. The preferred alternative shall be selected according to the procedures in Part 23 of the Agreement.

IX.D. Detailed Analysis Deliverables. DOE shall submit draft CMS/FS Reports for each OU to EPA and the State for review and comment. Once EPA and the State comments have been addressed by DOE, to the satisfaction of the LRA, or EPA and the State in the event of a joint lead OU, the Final CMS/FS Report shall be submitted for review and approval.

IX.D.1. Corrective Measures Study/Feasibility Study Report (CMS/FS). DOE shall prepare draft CMS/FS Reports for each OU for review and comment. These reports, as ultimately adopted or amended, provide a basis for remedy selection by EPA and/or the State and document the development and analysis of corrective/remedial alternatives. DOE shall refer to Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final, October 1988 [or as amended] for an outline of the report format and the required report content. DOE shall prepare Final CMS/FS Reports which incorporate and address EPA and/or State comments in a manner satisfactory to EPA and/or the State, for EPA and/or State review and approval.

X. Background Study. The Background Study Plan submitted January, 1989, shall be reviewed by EPA and the State. As the Background Study is presently ongoing, the Background Study shall be modified if necessary, after joint review and approval of the January, 1989 Background Study Plan by EPA and the State. The Background Study shall be used by EPA, the State and DOE to evaluate contaminant release. DOE shall submit the Background Study Reports detailing the preliminary results of the approved background study in accordance with the schedules within Table 6 of this

Attachment. DOE shall also submit updated Background Study Reports at least annually and in accordance with the schedules provided within Table 6 of this Attachment.

XI. Treatability Study. Within 180 days of the effective date of this Agreement, DOE shall submit a Treatability Study Plan for joint approval by EPA and the State, detailing the study of methods potentially available for use in Corrective/Remedial action for each type of waste/waste matrix in sites at the Rocky Flats Plant. The Treatability Study Plan shall identify candidate technologies for evaluation in a treatability studies program and shall cover the range of technologies required for alternative analysis during the CMS/FS. In the event site characteristics require the evaluation of additional treatability studies, DOE shall perform the EPA and the State required treatability studies in addition to the work defined within the Treatability Study Plan required by this paragraph. Within the Treatability Study Plan, DOE shall submit information on performance, relative costs, applicability, removal efficiencies, operation and maintenance requirements, and implementability of candidate technologies in addressing the below listed general types of wastes. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated by EPA and the State on the basis of existing information, the Treatability Study Plan shall propose a Treatability Study for the candidate technology(s). To this end, the Treatability Study Plan will propose a statement of work for the specific Treatability Study(s) to be performed. The Treatability Study Plan will outline the steps and data necessary to evaluate and initiate the treatability testing program, test objectives, data quality objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. If the quality assurance project plan (QAPP) and/or the field sampling plan (FSP) required in Attachment condition VI.B. do not adequately define or address the investigations to be conducted during the Treatability Study, then the Treatability Study Plan will incorporate an amended QAPP and FSP specific to the Treatability Study. The treatability study program shall not be initiated until EPA and the State have reviewed and jointly approved, in writing, the Treatability Study Plan.

The Treatability Study shall be initiated within 30 days of joint approval by EPA and the State. This study shall evaluate applicable technologies for the general types of wastes anticipated at the Rocky Flats Plant. The general types of wastes/waste matrices to be included in the study include: volatile and semi-volatile contaminated wastes,

soils, surface water and ground water; metal contaminated wastes, soils, surface water and ground water; radioactive wastes, soils, surface water and ground water and; any combination of the above listed general types of wastes.

The Treatability Study shall be completed and the results shall be submitted to EPA and the State within 36 months of the approval of the Treatability Study Plan by EPA and the State. Additional Treatability Studies may be proposed by DOE, or required by EPA and the State if, at any time it is determined that additional studies are required. Additional studies shall be initiated by submission of amendments to the Treatability Study Plan, for EPA and State review and approval.

XII. Discharge Limits for Radionuclides. The June 19, 1989, Agreement in Principle between DOE and CDH requires that DOE provide a full set of samples for radionuclides before discharging from onsite ponds, for CDH to determine the safety of such discharges. Accordingly, DOE will prepare and submit a Workplan designed to control the release of radionuclides as specified herein. The Workplan will require DOE to sample before any offsite discharges from onsite ponds occur. In accordance with the Agreement in Principle, the Workplan will require that split samples be made available to EPA and CDH. The Workplan will require that DOE assess the water quality with respect to the recently promulgated Colorado Water Quality Control Commission (CWQCC) standards. The standards adopted for radionuclides are:

Parameter	Standard	
	Woman Creek	Walnut Creek
Gross Alpha	7 pCi/l	11 pCi/l
Gross Beta	5 pCi/l	19 pCi/l
Americium	0.05 pCi/l	0.05 pCi/l
Curium 244	60 pCi/l	60 pCi/l
Neptunium 237	30 pCi/l	30 pCi/l
Plutonium	0.05 pCi/l	0.05 pCi/l
Uranium	5 pCi/l	10 pCi/l
Cesium 134	80 pCi/l	80 pCi/l
Radium 226 and 228	5 pCi/l	5 pCi/l
Strontium 90	8 pCi/l	8 pCi/l
Thorium 230 and 232	60 pCi/l	60 pCi/l
Tritium	500 pCi/l	500 pCi/l

The Workplan will establish validated analytical methods as identified by EPA and the State, including, as appropriate, the methods delineated in 40 CFR 141.25, to determine concentrations of the parameters listed above. For parameters for which no validated standard analytical method esists, DOE will propose an analytical method for EPA and

State approval. DOE will report the results of the sampling and analyses to EPA and the State.

The Workplan will require DOE to identify potential treatment technologies to be utilized in the event that water quality for the terminal ponds exceeds the State standards. If no existing technologies adequate to achieve the standards are identified, DOE will use reasonable efforts to develop and implement such technologies. If achieving water quality that does not exceed the standards requires additional treatment or development of additional technologies, the parties agree to negotiate appropriate modifications to the Workplan, including schedules.

For purposes of this Agreement, future changes to these standards shall be addressed through the provisions in paragraph 9 of this Agreement. Any disputes between DOE and CDH over the interpretation or implementation of this section shall be resolved pursuant to the provisions of Part 12. The parties acknowledge that there is currently a disagreement among them regarding the legal enforceability of the radionuclide standards. Nothing in this agreement shall be interpreted as restricting any party's ability to pursue its available legal options regarding this enforcement issue.

XIII. Corrective and Remedial Action Proposed Plan (PP) and Corrective Action Decision/Record of Decision (CAD/ROD). DOE shall submit a draft Proposed Plan (PP) for EPA and State review and comment simultaneously with the Final CMS/FS Report submitted for review and approval by EPA and/or the State. After receiving and addressing the comments from EPA and the State on the draft Proposed Plan, DOE shall respond formally to the EPA and State comments prior to issuance of the final Proposed Plan. EPA and State comments and DOE responses to those comments must be summarized in the final Proposed Plan. The EPA and State comments and DOE responses to comments must be placed in the Administrative Record and incorporated in the final Proposed Plan prior to the public comment period. DOE shall subsequently submit the final Proposed Plan for EPA, State and public comment. The public comment on the final Proposed Plan may include review and comment on any supporting documents included in the Administrative Record. The final Proposed Plan shall be submitted in accordance with the schedules within Table 6 of this Attachment, or within 60 days of receipt of comments from EPA and the State on the draft Proposed Plan, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. In conjunction with submitting the final Proposed Plan, DOE shall comply with all public participation requirements, including CERCLA 117. Concurrently, the State shall prepare a proposed RCRA permit

modification and open a public comment period in accordance with 6 CCR 1007-3, Part 100. After close of the public comment period on the final Proposed Plan, DOE shall submit a draft Responsiveness Summary for each OU, in accordance with the schedules within Table 6 of this Attachment or within 60 days of the end of the public comment period, for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, for EPA and State review and comment.

DOE shall submit the Final Responsiveness Summary simultaneously with the required submittal of a draft Corrective Action Decision/Record of Decision (CAD/ROD) for EPA and State approval in accordance with the schedules within Table 6 of this Attachment or within 60 days of receipt of EPA and/or State comments on the draft Responsiveness Summary for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. Upon approval of the draft CAD/ROD by EPA and the State in accordance with the terms of the Agreement, and following a final decision by the State on the RCRA permit modification, DOE shall publish notice of the remedy selected in the CAD/ROD, including any significant changes made to the PP based on any comments received.

DOE shall implement the CAD/ROD in accordance with section XIV of this Attachment immediately upon approval of the CAD/ROD by EPA and the State in accordance with paragraph 156 of this Agreement, and following final modification of the State RCRA permit in accordance with the schedules within Table 6 of this Attachment and as required by EPA and the State after publication of the CAD/ROD for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16.

XIV. Implementation of the Corrective Action Decision/Record of Decision. In accordance with the decision of EPA and the State as embodied in the CAD/ROD, DOE shall implement the required action in accordance with the schedules within Table 6 of this Attachment or as specified within the CD/RD Workplan for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16. All plans, designs and schedules shall be subject to approval by EPA and the State in accordance with the terms of the Agreement, prior to implementation.

XIV.1. DOE shall implement the CAD/ROD required by this Attachment upon EPA and State approval of the CAD/ROD and upon modification of the State RCRA permit.

XIV.2. In accordance with the schedules within this Agreement or concurrently with the submittal of the Final CAD/ROD for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16, DOE shall submit the Corrective/Remedial Design Workplans (CD/RD Workplans) required to implement the CAD/ROD to EPA and the State for review and approval in accordance with

the terms of this Agreement. The CD/RD Workplans shall include schedules delineating the development of the Corrective/Remedial Design (CD/RD) and shall include schedules for the submittal of the CD/RD. The CD/RD Workplans shall provide a detailed discussion of the specific CD/RD tasks necessary to implement the approved remedy, including a description of the technical approach, and plans and specifications to be produced.

Should DOE determine that additional studies are necessary to supplement the technical data available from the RFI/RI, CMS/FS activities so that optimum treatment or disposal methods may be determined, DOE shall notify EPA and the State, in writing, of the need for such additional studies. If EPA and the State concur, DOE shall schedule and detail the work necessary to accomplish the additional studies in the CD/RD Workplan. DOE shall include a SAP consisting of a QAPP and FSP for any such additional studies with the CD/RD Workplan submittal.

DOE shall provide the results of any additional studies to EPA and the State and describe their effect upon the work in a technical memorandum submitted to EPA and the State for review and approval. The submittal date for this technical memorandum shall be scheduled within the approved CD/RD Workplan. After making any required corrections or modifications based on EPA or State comment, DOE shall incorporate the information contained in these technical memoranda into the CD/RD.

XIV.3. The CD/RD shall be submitted for EPA and State review and approval in accordance with the approved schedule within the CD/RD Workplan. The CD/RD shall provide design information necessary to implement the approved CAD/ROD. The CD/RD shall include a detailed schedule defining all activities critical to the start and completion of construction of the Corrective/Remedial Action. The CD/RD shall include provisions for the long term operation and maintenance of the remedy as required by CERCLA.

XIV.3. Within 60 days of completion of Corrective/Remedial Action for a site or OU, DOE shall submit to EPA and the State by registered mail, a certification of completion of Corrective/Remedial Action for the site or OU.

XV. Units requiring permits pursuant to the CHWA. All units at the facility which treat, store, or dispose of hazardous and/or mixed waste generated by facility operations are

subject to the substantive and procedural requirements of the CHWA including permitting requirements.

XV.1. The following units require permits under the CHWA:

XV.1.A. EXISTING UNITS

Unit 1	Unit 23	Unit 49(*)
Unit 10	Unit 24	Unit 55
Unit 11	Unit 27	Unit 56
Unit 12	Unit 30	Unit 57
Unit 13	Unit 39	Unit 59
Unit 15 Partial	Unit 40	Unit 61
Unit 17	Unit 41	Unit 62
Unit 19	Unit 42	Unit 63
Unit 20	Unit 43	Unit 69
	Unit 44	Unit 73

Permit applications have been submitted for these units. They have not in all cases been reviewed by the Colorado Department of Health. Any additional information, requirements and schedules for submittal will be specified in subsequent correspondence to the Department of Energy.

XV.1.B. NEW UNITS

Unit 74
Unit 75
Unit 76
Unit 77

Requests for changes to Interim Status have been submitted for units 74 and 75. Permit applications will be submitted for these new units as required by the State. Any additional information, requirements and schedules for submittal will be specified in correspondence to DOE after review of the permit applications.

XV.2. Any new units identified as a result of characterization studies being conducted pursuant to the Agreement in Principle of 6/28/89, Federal Facility Compliance Agreement and Compliance Order on Consent No. (3008)VIII-89-25, Settlement Agreement and Compliance Order on Consent No. 89-10-30-01, or any other future determinations are also subject to the CHWA. Permit applications or modification requests must be submitted pursuant to the requirements of 6 CCR 1007-3, Part 100.

(*) Part A application only

Table 1:
INDIVIDUAL HAZARDOUS SUBSTANCE SITES

REF. NO.	SITE NAME
101	207 SOLAR EVAPORATION PONDS
102	OIL SLUDGE PIT
103	CHEMICAL BURIAL
104	LIQUID DUMPING
105	OUT-OF-SERVICE FUEL TANKS
	105.1 - WESTERNMOST TANK
	105.2 - EASTERNMOST TANK
106	OUTFALL
107	HILLSIDE OIL LEAK
108	TRENCH T-1
109	TRENCH T-2
110	TRENCH T-3
111	TRENCHES T-4 TO T-11
	111.1 : TRENCH T-4
	111.2 : TRENCH T-5
	111.3 : TRENCH T-6
	111.4 : TRENCH T-7
	111.5 : TRENCH T-8
	111.6 : TRENCH T-9
	111.7 : TRENCH T-10
	111.8 : TRENCH T-11
112	903 DRUM STORAGE AREA
113	MOUND AREA
114	PRESENT LANDFILL
115	ORIGINAL LANDFILL
116	MULTIPLE SOLVENT SPILLS
	116.1 : WEST LOADING DOCK AREA
	116.2 : SOUTH LOADING DOCK AREA

Note: This information is based on the administrative record including the information submitted in the hazardous and low-level mixed waste Part B application dated November 1, 1985, as modified by the subsequent revision dated November 28, 1986, as modified by the subsequent revision dated December 15, 1987, and the transuranic mixed waste Part B application submitted July 1, 1988, [hereafter referred to as the applications]. This information is also based on independent review of historical aerial photographs of the facility and independent review of facility submittals.

Table 1:
INDIVIDUAL HAZARDOUS SUBSTANCE SITES

REF. NO.	SITE NAME
117	CHEMICAL STORAGE
	117.1 : NORTH SITE
	117.2 : MIDDLE SITE
	117.3 : SOUTH SITE
118	MULTIPLE SOLVENT SPILLS
	118.1 : WEST OF BUILDING 730
	118.2 : SOUTH END OF BUILDING 776
119	MULTIPLE SOLVENT SPILLS
	119.1 : WEST AREA
	119.2 : EAST AREA
120	FIBERGLASSING AREAS
	120.1 : NORTH OF BUILDING 664
	120.2 : WEST OF BUILDING 664
121	ORIGINAL PROCESS WASTE LINES
122	UNDERGROUND CONCRETE TANK
123	VALVE VAULT 7
	123.1 : VALVE VAULT 7
	123.2 : VALVE VAULT WEST OF BUILDING 707
124	RADIOACTIVE LIQUID WASTE STORAGE TANK
	124.1 : 30,000 GALLON TANK (T-68, Unit 55.14)
	124.2 : 14,000 GALLON TANK (T-66, Unit 55.15)
	124.3 : 14,000 GALLON TANK (T-67, Unit 55.16)
125	HOLDING TANK
126	OUT-OF-SERVICE PROCESS WASTE TANKS
	126.1 : WESTERNMOST TANK
	126.2 : EASTERNMOST TANK
127	LOW-LEVEL RADIOACTIVE WASTE LEAK
128	OIL BURN PIT NO. 1
129	OIL LEAK
130	RADIOACTIVE SITE - 800 AREA SITE #1
131	RADIOACTIVE SITE - 700 AREA SITE #1
132	RADIOACTIVE SITE - 700 AREA SITE #4
133	ASH PITS
	133.1 : ASH PIT 1-1
	133.2 : ASH PIT 1-2
	133.3 : ASH PIT 1-3
	133.4 : ASH PIT 1-4
	133.5 : INCINERATOR
	133.6 : CONCRETE WASH PAD
134	LITHIUM METAL DESTRUCTION SITE
135	COOLING TOWER BLOWDOWN

Table 1:
INDIVIDUAL HAZARDOUS SUBSTANCE SITES

REF. NO.	SITE NAME
136	COOLING TOWER PONDS
	136.1 : NORTHEAST CORNER OF BUILDING 460
	136.2 : WEST OF BUILDING 460
	136.3 : S. OF BLDG. 460, W. OF BLDG. 444
137	COOLING TOWER BLOWDOWN - BLDG. 774
138	COOLING TOWER BLOWDOWN - BLDG. 779
139	CAUSTIC/ACID SPILLS
	139.1 : HYDROXIDE TANK AREA
	139.2 : HYDROFLUORIC ACID TANKS
140	REACTIVE METAL DESTRUCTION SITE
141	SLUDGE DISPERSAL
142	RETENTION PONDS (A,B,C-SERIES)
	142.1 : A-1 POND
	142.2 : A-2 POND
	142.3 : A-3 POND
	142.4 : A-4 POND
	142.5 : B-1 POND
	142.6 : B-2 POND
	142.7 : B-3 POND
	142.8 : B-4 POND
	142.9 : B-5 POND
	142.10: C-1 POND
	142.11: C-2 POND
	142.12 NEWLY IDENTIFIED A-5 POND
143	OLD OUTFALL
144	SEWER LINE BREAK
145	SANITARY WASTE LINE LEAK
146	CONCRETE PROCESS WASTE TANKS
	146.1 : 7,500 GALLON TANK (#31)
	146.2 : 7,500 GALLON TANK (#32)
	146.3 : 7,500 GALLON TANK (#34W)
	146.4 : 7,500 GALLON TANK (#34E)
	146.5 : 3,750 GALLON TANK (#30)
	146.6 : 3,750 GALLON TANK (#33)
147	PROCESS WASTE LEAKS
	147.1 : MAAS AREA
	147.2 : OWEN AREA
148	WASTE SPILLS
149	EFFLUENT PIPE
150	RADIOACTIVE LIQUID LEAKS (8)
	150.1 : NORTH OF BUILDING 771
	150.2 : WEST OF BUILDING 771
	150.3 : BETWEEN BUILDINGS 771 and 774
	150.4 : EAST OF BUILDING 750
	150.5 : WEST OF BUILDING 707
	150.6 : SOUTH OF BUILDING 779
	150.7 : SOUTH OF BUILDING 776

Table 1:
INDIVIDUAL HAZARDOUS SUBSTANCE SITES

REF. NO.	SITE NAME
	150.8 : NORTHEAST OF BUILDING 779
151	FUEL OIL LEAK
152	FUEL OIL TANK
153	OIL BURN PIT NO. 2
154	PALLET BURN SITE
155	903 LIP AREA
156	RADIOACTIVE SOIL BURIAL
	156.1 : BUILDING 334 PARKING LOT
	156.2 : SOIL DUMP AREA
157	RADIOACTIVE SITE
	157.1 : NORTH AREA
	157.2 : SOUTH AREA
158	RADIOACTIVE SITE - BLDG. 551
159	RADIOACTIVE SITE - BLDG. 559
160	RADIOACTIVE SITE - BLDG. 444 PK LOT
161	RADIOACTIVE SITE - BLDG. 664
162	RADIOACTIVE SITE - 700 AREA SITE #2
163	RADIOACTIVE SITE - 700 AREA SITE #3
	163.1 : WASH AREA
	163.2 : BURIED SLAB
164	RADIOACTIVE SITE - 800 AREA SITE #2
	164.1 : CONCRETE SLAB
	164.2 : BUILDING 886 SPILLS
	164.3 : BUILDING 889 STORAGE PAD
165	TRIANGLE AREA
166	TRENCHES
	166.1 : TRENCH A
	166.2 : TRENCH B
	166.3 : TRENCH C
167	SPRAY FIELDS - THREE SITES
	167.1 : NORTH AREA
	167.2 : POND AREA
	167.3 : SOUTH AREA
168	WEST SPRAY FIELD
169	WASTE DRUM PEROXIDE BURIAL
170	P.U.& D. STORAGE YARD - WASTE SPILLS
171	SOLVENT BURNING GROUND
172	CENTRAL AVENUE WASTE SPILL
173	RADIOACTIVE SITE - 900 AREA
174	P.U.&D. CONTAINER STORAGE FACILITIES (2)
175	S&W BLDG. 980 CONTAINER STORAGE FACILITY
176	S&W CONTRACTOR STORAGE YARD
177	BUILDING 885 DRUM STORAGE AREA
178	BUILDING 881 DRUM STORAGE AREA
179	BUILDING 865 DRUM STORAGE AREA
180	BUILDING 883 DRUM STORAGE AREA

Table 1:
INDIVIDUAL HAZARDOUS SUBSTANCE SITES

REF NO.	SITE NAME
181	BUILDING 334 CARGO CONTAINER AREA
182	BUILDING 444/453 DRUM STORAGE AREA
183	GAS DETOXIFICATION AREA
184	BUILDING 991 STEAM CLEANING AREA
185	SOLVENT SPILL
186	VALVE VAULT 12
187	ACID LEAKS (2)
188	ACID LEAK
189	MULTIPLE ACID SPILLS
190	CAUSTIC LEAK
191	HYDROGEN PEROXIDE SPILL
192	ANTIFREEZE DISCHARGE
193	STEAM CONDENSATE LEAK
194	STEAM CONDENSATE LEAK
195	NICKEL CARBONYL DISPOSAL
196	WATER TREATMENT PLANT BACKWASH POND
197	SCRAP METAL SITES
198	(Deleted)
199	CONTAMINATION OF THE LAND SURFACE
200	GREAT WESTERN RESERVOIR
201	STANDLEY RESERVOIR
202	MOWER RESERVOIR
203	INACTIVE HAZARDOUS WASTE STORAGE AREA
204	ORIGINAL URANIUM CHIP ROASTER
205	BLDG. 460 SUMP #3 ACID SIDE
206	INACTIVE D-836 HAZARDOUS WASTE TANK
207	INACTIVE 444 ACID DUMPSTER
208	INACTIVE 444/447 WASTE STORAGE AREA
209	SURFACE DISTURBANCE SOUTHEAST OF BLDG. 881
210	UNIT 16, BUILDING 980 CARGO CONTAINER
211	UNIT 26, BUILDING 881 DRUM STORAGE
212	UNIT 63, BUILDING 371 DRUM STORAGE
213	UNIT 15, 904 PAD PONDCRETE STORAGE
214	UNIT 25, 750 PAD PONDCRETE AND SALTCRETE STORAGE
215	UNIT 55.13 - TANK T-40
216	EAST SPRAY FIELDS
	216.1 : NORTH AREA
	216.2 : CENTER AREA
	216.3 : SOUTH AREA
217	UNIT 32, BUILDING 881, CN^- BENCH SCALE TREATMENT

Table 2: Organization of Individual Sites Into Operable Units (OU)

Operable Unit	Individual Sites
1	102, 103, 104, 105.1, 105.2, 106, 107, 119.1, 119.2, 130, 145
2	108, 109, 110, 111.1, 111.2, 111.3, 111.4, 111.5, 111.6, 111.7, 111.8, 112, 113, 140, 153, 154, 155, 183, 216.2, 216.3
3	199, 200, 201, 202
4	101
5	115, 133.1, 133.2, 133.3, 133.4, 133.5, 133.6, 142.10, 142.11, 209
6	141, 142.1, 142.2, 142.3, 142.4, 142.5, 142.6, 142.7, 142.8, 142.9, 142.12, 143, 165, 166.1, 166.2, 166.3, 167.1, 167.2, 167.3, 216.1
7	114, 203
8	118.1, 118.2, 123.1, 123.2, 125, 126.1, 126.2, 127, 132, 135, 137, 138, 139.1, 139.2, 144, 146.1, 146.2, 146.3, 146.4, 146.5, 146.6, 149, 150.1, 150.2, 150.3, 150.4, 150.5, 150.6, 150.7, 150.8, 151, 159, 163.1, 163.2, 172, 173, 184, 188
9	121
10	124, 124.1, 124.2, 124.3, 129, 170, 174, 175, 176, 177, 181, 182, 205, 206, 207, 208, 210, 213, 214
11	168
12	116.1, 116.2, 120.1, 120.2, 136.1, 136.2, 136.3, 147.1, 147.2, 157.2, 187, 189
13	117.1, 117.2, 117.3, 122, 128, 134, 148, 152, 157.1, 158, 169, 171, 186, 190, 191
14	131, 156.1, 156.2, 160, 161, 162, 164.1, 164.2, 164.3
15	178, 179, 180, 204, 211, 212, 215, 217
16	185, 192, 193, 194, 195, 196, 197

Table 3: Lead Regulatory Agency
Designation for Each Operable Unit and Specific Site-Wide Submittals

Operable Unit	Lead Regulatory Designation
1	Joint EPA and CDH (goes through CDH Dispute Resolution process)
2	Joint EPA and CDH (goes through EPA Dispute Resolution process)
3	EPA
4	CDH
5	EPA
6	EPA
7	CDH
8	Joint EPA and CDH (goes through CDH Dispute Resolution process)
9	CDH
10	CDH
11	CDH
12	CDH
13	CDH
14	EPA
15	CDH
16	CDH

Table 3 (cont'd): Lead Regulatory Agency Designation for Each Operable Unit and Specific Site-wide Submittals

Submittal	Lead Regulatory Designation
QAPP	EPA
SAP	EPA
Plan for the Prevention of Contaminant Dispersion	CDH
Community Relation Plan	EPA
Workplan to Implement Discharge Limits for Radionuclides	Joint EPA and CDH (goes through CDH Dispute Resolution process)
Treatability Study Plan	EPA
Treatability Study Report	EPA
Background Study Plan	EPA

Table 4: Listing of Primary and Secondary Documents

Primary	Secondary
RFI/RI Workplans (draft and final)	Historical Release Report
RFI/RI Reports (draft, all phases, and final)	Monthly Progress Reports
CMS/FS Reports (draft, all phases and final)	Health & Safety Plan
Proposed Plan (draft and final)	Baseline Risk Assessment Technical Memoranda
IM/IRA Decision Documents (draft, proposed, and final)	CMS/FS Technical Memoranda
Responsiveness Summaries	RFI/RI Workplan Technical Memoranda
Corrective Action Decisions/ Records of Decisions (draft and final)	Priority Proposal for OUs 3, 5, 6, 8, 12, 13, 14, 15, and 16
Corrective/Remedial Design Plans	
Corrective Design/Remedial Design Workplans	
Community Relations Plans	
Sampling and Analysis Plan	
Plan for Prevention of Contaminant Dispersion	
Background Study Plan	
Treatability Study Plan	
Workplan to Implement Discharge Limits for Radionuclides	
IM/IRA Implementation Document	
Certification of Completion	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 1-881 Hillside

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
102	Oil Sludge Pit	1. Continue with 881 Hillside RFI/RI CMS/FS process in progress.	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit a revised 881 RI/FS (RFI/CMS) in accordance with the schedules within Table 6 of the SOW. The revised RI/FS (RFI/CMS) shall incorporate and address all issues and comments by CDH and EPA in the comment letter sent by EPA and CDH to the facility dated 8/31/88, the comment letter sent by EPA to the facility dated 8/13/87 and the CDH comment letter sent to the facility dated 10/14/87.
103	Chemical Burial		
104	Liquid Dumping		
105.1	Western Most Out-of-Service Fuel Tank		
105.2	Eastern Most Out-of-Service Fuel Tank		
106	Outfall		
107	Hillside Oil Leak		
119.1 119.2	Multiple Solvent Spills; West and East Areas		
130	Radioactive Site #1 - 800 Area		
145	Sanitary Waste Line Leak		

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 2-903 Pad, Mound & East Trenches

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
108	Trench T-1	1. Continue with 903 Pad, Mound and East Trenches Areas RI/FS process in progress.	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. The RFI/RI Workplan shall incorporate a revised 903 Pad, Mound and East Trenches Phase II Sampling Plan.The revised 903 Pad, Mound and East Trenches RI (RFI) must be submitted in accordance with the schedules in Table 6 of this SOW. The revised Phase II Sampling Plan shall incorporate and address comments made by EPA and CDH concerning the Plan, dated 11/30/88. The revised 903 Pad, Mound and East Trenches RI (RFI) to be submitted shall incorporate and address comments made by EPA and CDH dated 3/1/88 and 3/22/88 respectively.
109	Trench T-2		
110	Trench T-3		
111.1	Trench T-4		
111.2	Trench T-5		
111.3	Trench T-6		
111.4	Trench T-7		
111.5	Trench T-8		
111.6	Trench T-9		
111.7	Trench T-10		
111.8	Trench T-11		
112	903 Drum Storage Area		
113	Mound Area		
140	Reactive Metal Destruction		
153	Oil Burn Pit No. 2		
154	Pallet Burn Site		
155	903 Lip Area		
183	Gas Detoxification Area		
216.2	East Spray Field, Cntr Area	1. Submit all historical information regarding the use of the east spray fields and all information gathered to date resulting from any field investigations of the sites.	
216.3	East Spray Field, South Area		

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 3-Off-site Areas

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
198	VOC's in the Groundwater	1. Deleted. This site was misidentified as an individual site.	
199	Contamination of the Land's Surface	1. Submit a report detailing the history of the remedy ordered by the U.S. District Court pursuant to the land owner's suit settled July 10, 1985, the implementation of the remedy, and the effectiveness of the remedy. Within this report include a health assessment identifying the public health risk associated with potential exposure to the public prior to completing any site remediation, during implementation of the remedy, and after completion of the Settlement Agreement imposed remedy. This report must detail the effectiveness of the remedy and the risks associated with a no action alternative as well as detailing the risks associated with plausible exposure during implementation of the remedy and after completion of the remedy.	1. Submit the required report in accordance with the schedules in Table 6 of the SOW.
200	Great Western Reservoir	1. Submit all known and accumulated data describing, detailing or defining contamination within the reservoir and tributarys of the reservoir including surface and groundwater sources. 2. Submit a health risk assessment documenting the risks derived from all potential exposures associated with a no action alternative for remediation of the contamination.	1. Submit the required reports in accordance with the schedules in Table 6 of the SOW.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
201	Standley Reservoir	1. Submit all known and accumulated data describing, detailing or defining contamination within the reservoir and tributarys of the reservoir including surface and groundwater sources. 2. Submit a health risk assessment documenting the risks derived from all potential exposures associated with a no action alternative for remediation of the contamination.	1. Submit the required reports in accordance with the schedules in Table 6 of the SOW.
202	Mower Reservoir	1. Submit all known and accumulated data describing, detailing or defining contamination within the reservoir and tributarys of the reservoir including surface and groundwater sources. 2. Submit a health risk assessment documenting the risks derived from all potential exposures associated with a no action alternative for remediation of the contamination.	1. Submit the required reports in accordance with the schedules in Table 6 of the SOW.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 4-Solar Ponds

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
101	207 Solar Evaporation Ponds	1. Close the regulated units in accordance with this Agreement and the regulations. 2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment. 3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	1. As required by section I.B.11 of the SOW. 2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 5-Woman Creek Drainage
Operable Unit 6-Walnut Creek Drainage

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
115	Original Landfill	1. Perform a Radiological Survey over the area of the landfill utilizing a side-shielded field instrument for detection of low energy radiation (FIDLER) and a shielded Geiger-Mueller (G-M) pancake detector. Readings will initially be taken on an offset 100 foot grid. If hotspots are detected the grid will be tightened to pinpoint the radiological source. The results will be plotted on a map and contoured. This investigation shall also be conducted at the solid waste disposal areas located to the east of the identified location of the old landfill as depicted in the 10/15/64, and 8/7/69 aerial photographs. 2. Complete a real time soil gas analysis over the entire area of the landfill on offset 100 foot centers. The soil gas analysis will also be conducted over the area east of the identified location of the landfill as stated in (1) above. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for the volatiles 1,1,1 TCA, dichloromethane, benzene, carbon tetrachloride, PCE and TCE. The analysis will note analytical peaks for compounds not calibrated for on the GC. Soil cores will be taken at the location of the soil gas analysis on a random basis after every 50 soil gas surveys to verify the presence or non-presence of volatiles at the specific location. If positive soil gas results are indicated, boreholes will also be placed to transect the plume(s). The soil borings will be drilled at least three feet into weathered bedrock. The boreholes transecting plumes at the site will be completed as groundwater monitoring	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit the Phase I RFI/RI Report in accordance with the schedules in Table 6 of the SOW. The Phase I RFI/RI Report will include all data collected as a result of and required by this preliminary workplan for this group of sites.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
115 cont'd		wells. Composite samples will be collected from every 2 foot interval and analyzed for HSL volatiles and semi-volatiles using calibrated GC/MS. Composite samples will also be taken from each six foot interval and analyzed for HSL metals,uranium 233/234, uranium 235, uranium 238,plutonium 239/240, americium 241, cesium 137, strontium 89/90, and beryllium. 3. Install three downgradient ground water monitoring points between the landfill and the interceptor ditch. These points must monitor alluvial groundwater quality. The geology shall be characterized prior to determining the type of groundwater monitoring point to construct at each location. The first point will be placed between the western leg of the landfill and the interceptor ditch. This first point will collect water from the saturated interval of the alluvial groundwater system. The second point will be placed in the surface drainage north of well 57-86 between the landfill and the interceptor ditch within the area of the old embankment and will intercept groundwater from the saturated thickness of the alluvial groundwater system. The third point will be placed between the southeastern corner of the unit boundary and the interceptor ditch, downgradient of the outfall identified on the southeast side of the landfill. This point will be screened to intercept groundwater from the saturated thickness of the alluvial groundwater system. The groundwater will be sampled quarterly and analyzed for HSL volatiles, HSL metals, HSL semivolatiles, soluble cesium 137 and strontium 89/90, insoluble beryllium, soluble and insoluble uranium, soluble and insoluble plutonium, and dissolved lead and chromium.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
115 cont'd		4. Confirm the piping interconnections and sources of water alluded to in section 3.1.1. of Volume I,Remedial Investigation and Feasibility Study Plans for Low Priority Sites. If water is found to be flowing through the two corrugated pipes protruding from the landfill, sample the effluent and analyse the effluent for the same constituents as outlined in (3) above. The effluent shall be sampled quarterly. 5. Sample the sediments and surface water of the interceptor ditch and Woman Creek immediately downgradient of the original landfill. Analyze the sediments for the same constituents as outlined in (3) above.	
133.1 133.2 133.3 133.4 133.5 133.6	Ash Pits 1 - 4, Incinerator and Concrete Wash Pad	1. Reevaluate and investigate the extent of the disposal areas for this site in light of the 1953, 1964, 1969, and 1978 through 1988 aerial photographs of the site. These include an area north of the west access road and waste areas beyond the boundaries sites 133.1 and 133.6. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of all areas associated with site 133. The survey shall be conducted using 10 foot grids and will cover all areas affected by site 133. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of site 133 utilizing soil borings drilled five feet into weathered bedrock. Boreholes on 25 foot centers will transect each site and will also be placed over hotspots detected during the radiometric survey of the sites. All samples will be	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
133 cont'd		composited to represent 2 foot intervals and will be analyzed for total uranium, gross alpha and gross beta. Prior to drilling the boreholes, 2" surface scrape samples will be taken at "hotspots" as indicated by the radiation survey and analyzed for the same constituents as listed above.	
		4. Install three downgradient ground water monitoring points between site 133 and Woman Creek. These points must monitor alluvial groundwater quality. The geology shall be characterized prior to determining the type of groundwater monitoring point to construct at each location. The groundwater monitoring locations will be proposed to EPA and CDH after the geological characterization has been completed. The groundwater points will monitor the saturated interval of the alluvial groundwater system. The groundwater will be sampled quarterly and analyzed for HSL volatiles, HSL metals, HSL semivolatiles, soluble cesium 137 and strontium 89/90, soluble and insoluble beryllium, soluble and insoluble uranium, and soluble and insoluble plutonium.	
141	Sludge Dispersal	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 141. The survey shall be conducted using 25 foot grids and will cover all areas affected by site 141. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation.	
		2. Conduct a soil sampling survey of site 141 utilizing surface soil scrapings to a depth of 2 inches. The scrapings will be collected using 25 foot grids and will	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
141 cont'd		also be taken from "hotspots" located during the radiometric survey. The samples will be analyzed for total plutonium, total americium, beryllium, total chromium, HSL metals, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha and gross beta. 3. Complete a monitoring well downgradient of site 141. The location shall be proposed to EPA and CDH for review and approval. The well shall monitor alluvial groundwater. Quarterly samples shall be taken and analyzed for HSL volatiles, HSL semi-volatiles, gross alpha and gross beta. Results of these first analyses shall be submitted in the PSC.	
142	Retention Ponds; A-1, A-2, A-3, A-4, A-5, B-1, B-2, B-3, B-4, B-5, C-1, C-2	1. Submit the Rockwell International, 1986 report, "Trends in the Rocky Flats Surface Water Monitoring". Submit all data pertaining to these ponds and their respective water and sediment quality. 2. Collect five surface water and five sediment samples from five locations in all A, B and C series retention ponds. At least one of the five water samples for each pond shall be taken from the deepest part of each pond. Stratification of the water column shall be identified through temperature or dissolved oxygen measurements. Water samples shall be taken from each vertically stratified zone of the pond, if applicable. One of the five water samples to be taken from each pond shall be taken within 5 feet of the inlet of the pond. One of the five water samples to be taken from each pond shall be taken within five feet of the pond spillway. One of the five sediment samples shall be taken from the bank of each pond presently below waterline. One of the five sediment samples shall be taken from the	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
142 cont'd		bank of each pond above high waterline. One of the sediment samples will be taken within five feet of the pond inlet. Two of the sediment samples will be taken from the deepest parts of each pond. All sediment samples shall represent the entire vertical column of sediment present at each specific location within each pond. One sediment sample and one water sample shall be taken within the confines of the pond located between the confluence of North and South Walnut Creek and Indiana Street. All of the sediment samples shall be analyzed for total plutonium 239/240, total americium 241, total uranium 233/234, total uranium 235, total uranium 238, tritium, beryllium, total chromium, total strontium 89/90, total cesium 137, gross alpha, gross beta, HSL metals, HSL volatiles, HSL semi-volatiles, and total nitrate. The aqueous samples shall be analyzed for the same constituents, but will analyze for soluble and insoluble phases for HSL metals and radionuclides. 3. Collect sediment samples from seven locations upstream of pond A-1. Collect sediment samples from four locations upstream of pond B-1. The locations for the sediment samples upstream of ponds A-1 and B-1 should be approximately equally spaced and located within the stream channel conducive to the collection of sediment. The upstream sediment samples should be located between the PSZ and pond A-1 and B-1. Collect sediment samples from 10 locations upstream of pond C-1. The locations for the C-1 upstream sediment samples should be approximately equally spaced and located within the stream channel and conducive to the	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
142 cont'd		collection of sediment. The sediment samples upstream of pond C-1 shall be located between pond C-1 and site 133.6. Four sediment samples should be taken approximately equally spaced and located between pond C-2 and pond C-1 within the stream channel and conducive to sediment collection. Ten sediment samples shall be taken within the south interceptor ditch, approximately equally spaced between pond C-2 and the southwest corner of the original landfill. One sediment sample shall be collected between each A and B series pond within the channel and conducive to the collection of sediment. All sediment samples shall be analyzed for the same constituents as stated in number (2) above. All samples shall represent the entire vertical column of sediment present at each sampling location. If the sediment depth is greater than two feet, individual two foot composites shall be collected. 4. Collect sediment samples from four locations immediately downstream of ponds A-4 and B-5, prior to the confluence of North and South Walnut Creek. An additional four samples shall be collected approximately equally spaced and located between the plant and Indiana Street within Walnut Creek at locations conducive to the collection of sediment. Collect sediment samples from 4 locations downstream of pond C-2. The locations for the C-2 downstream samples shall be approxiamtely equally spaced and located between the pond and Indiana Street within the channel and conducive to the collection of sediment. These samples shall be analyzed for the same constituents as stated in number (2) above. All sediment samples shall represent the vertical column of sediments present at the location being	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
142 cont'd		sampled. If the sediment depth is greater than two feet, individual two foot composites shall be collected. 5. Construct two groundwater wells immediately downgradient of each dam at ponds A-4, B-5, C-2, and C-1. These wells will be constructed within the the original stream channel and will monitor the alluvial groundwater downgradient of each dam/pond. Samples of the groundwater will be collected upon completion of the well and quarterly thereafter. The groundwater samples will be analyzed for constituents as for the aqueous samples in (2) above. Results of the analyses will be presented in the PSC to be submitted in accordance with the schedules as outlined in this Statement of Work.	
143	Old Outfall	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 143. The survey shall be conducted using 10 foot grids and will cover all areas affected by site 143. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 2. Conduct a soil sampling survey of site 143 utilizing surface soil scrapings to a depth of 2 inches and 2 foot cores composited to represent 2 feet of soil. The surface and core samples will be collected using a 20 foot grid and will also be taken from "hotspots" located during the radiometric survey. The grid will extend along the drainage of the old outfall to the PSZ. The samples will be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate,	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
143 cont'd		uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and HSL metals.	
165	Triangle Area	1. Reevaluate the extent of the disposal area in light of the 1953, 1964, 1969, and 1971 aerial photographs which indicate that the site extends farther to the north, east and west than is presently acknowledged. 2. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for this site. 3. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 165. The survey shall be conducted using 25 foot grid intervals and will cover all areas affected by this site. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 4. Complete a real time soil gas analysis over the entire area of site 165 using 50 foot grid intervals. The soil gas analysis will utilize a portable GC. Detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for the volatiles carbon tetrachloride, TCE, methylene chloride, acetone, 2-butanone, PCE, 1,2 DCA, chloroform, and toluene. The analysis will note analytical peaks for compounds not calibrated for on the GC. Soil cores will be taken at the location of the soil gas analysis on a random basis every 25 soil gas surveys to verify the presence or non-presence of volatiles and semi-volatiles at the specific location and to determine the radioactive constituent concentration in the soils at this site. At least three borehole transects will be located to delineate VOC or	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
165 cont'd		radioactive plume gradient. Prior to drilling the boreholes, 2" surface scrapes will be taken and analyzed for total plutonium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta and beryllium. The soil borings will be drilled three feet into weathered bedrock. Composite samples will be taken from every 2 foot interval and analyzed for HSL volatiles and HSL semivolatiles utilizing calibrated GC/MS. Six foot composite samples will be analyzed for total plutonium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and beryllium. 5. Two groundwater monitoring wells shall be completed to monitor the alluvial groundwater within this site. One well shall be located east of the PSZ within the site and one shall be located within the PSZ, within the site. Groundwater shall be sampled immediately upon completion of the wells and quarterly thereafter. The groundwater shall be monitored for HSL volatiles, HSL semi-volatiles, HSL metals, gross alpha, and gross beta. Initial results of the groundwater sampling and analysis shall be submitted with the PSC for this group.	
166.1 Trench A 166.2 Trench B 166.3 Trench C		1. Conduct a geophysical survey to locate and determine the extent of the 166 trenches. Reevaluate the location of this site after reviewing the aerial photographs dated 10/15/64 and 8/7/69. 2. Conduct a soil sampling survey of all areas affected by sites 166.1, 166.2 and 116.3. The investigation shall consist of transecting the trenches with soil boreholes placed every 25' longitudinally along each trench. Soil cores shall be be drilled to a depth five feet below the bottom of each pit. Soil cores shall be	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
166 cont'd		composited to represent 2 feet of soil and analyzed for HSL volatiles. Core samples shall also be composited to represent six feet of soil and analyzed for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and HSL metals.	
167.1 167.2 167.3	North Area Spray Field Pond Area Spray Field South Area Spray Field	1. Reevaluate the extent and location of the 167.2 spray field in light of the 1988 aerial photographs. 2. Conduct a soil sampling survey of all areas affected by sites 167.1, 167.2 and 167.3 utilizing surface scrapes representing the top 2" of soil and soil cores drilled to a depth of 4 feet. Composites shall be sampled to represent 2 feet of soil. The core samples will be collected at grid locations 50 feet apart. The samples will be analyzed for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha and gross beta, tritium, and HSL metals. 3. Two alluvial groundwater monitoring wells shall be placed immediately downgradient of sites 167.1 and 167.3 within the surface drainages flowing to North Walnut Creek. These wells shall be screened as near the surface as possible through to weathered bedrock to intercept the saturated thickness of soil within the alluvium. The groundwater will be sampled quarterly and analyzed for HSL volatiles, soluble and insoluble uranium, soluble and insoluble plutonium, HSL metals and tritium.	
209	Surface disturbance Southeast of Bldg. 881	1. Determine and submit all historical use information pertaining to this site. Determine the nature of what appear to be trenches in the aerial photograph taken 10/15/64, 8/7/69, and 8/6/71. Determine	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
209 (cont'd)		the nature of what appears to be a pond in the aerial photograph taken 10/5-83.	
216.1	East Spray Fields North Area	1. Submit all historical information regarding the use of the east spray fields and all information gathered to date resulting from any field investigation of the site.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 7-Present Landfill and Inactive Hazardous Waste Storage Area, Sites 114, 203

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
114	Present Landfill	1. Close the regulated units in accordance with this Agreement and the regulations.	1. As required by section I.B.11 of the SOW.
203	Inactive Waste Storage Area	2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment.	2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.
		3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 8-700 Area

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
118.1 118.2	Multiple Solvent Spills West of Building 730 and in the South End of Building 776	1. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for sites 118.1 and 118.2. 2. Complete a real time soil gas analysis over the entire area of site 118.1 and 118.2 using 25 and 30 foot grid intervals, respectively. The soil gas analysis shall utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for the volatiles 1,1,1 TCA, benzene, carbon tetrachloride, methylethyl ketone, dichloromethane, PCE, and TCE. The analysis shall note analytical peaks for compounds not calibrated for on the GC. Soil cores shall be taken at the location of the soil gas analysis on a random basis every 25 soil gas survey locations to verify the presence or non-presence of volatiles at the specific location. Transects of each site shall also be constructed longitudinally through each site. Four boreholes shall be constructed transecting site 118.1 and two boreholes shall be constructed to transect site 118.2. Prior to drilling each borehole, 2" soil surface scrapes shall be collected and analyzed for total plutonium, tritium, total uranium, gross alpha and gross beta. The soil boreholes shall be drilled three feet into weathered bedrock. Composite samples shall be taken from each two foot interval and shall be analyzed for HSL volatiles utilizing calibrated GC/MS.	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit the Phase I RFI/RI Report in accordance with the schedules in Table 6 of the SOW. This RFI/RI Report will include all data collected as a result of and required by this preliminary workplan for this group of sites.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
123.1 123.2	Valve Vault 7 and West of Bldg. 707	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of sites 123.1 and 123.2. The survey method shall be proposed within the Workplan for this OU. If "hotspots" are detected the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of the areas affected by site's 123.1 & 123.2. Four soil bores will be placed around each vault associated with site 123, and shall be drilled to a depth 10 feet below the bottom of each vault. Soil samples shall be composited to define each 2 foot interval of soil and analyzed for HSL volatiles. Soil samples shall also be composited to define six foot intervals, and will be analyzed for nitrates, flourides, beryllium, total uranium, total plutonium, gross alpha, and gross beta.	
125	Holding Tank	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of site 125. If the releases occurred after surfacing was in place, then the survey should be conducted without removing the surfacing. If the surfacing was placed after the spills occurred,	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
125 (cont'd)		then the top 2" of the soil surface shall be sampled and analyzed for radiation prior to drilling the boreholes. The survey shall be conducted using 10 foot grids and will cover all areas affected by site 125. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of the areas affected by sites 125. Soil bores will be placed around each tank associated with site 125 and will be drilled to a depth 10 feet below the bottom of each tank. The soil samples shall be composited to define each 2 foot interval and will be analyzed for HSL volatiles. In addition, the soils shall be composited to represent six foot intervals and shall be analyzed for nitrates, total americium, beryllium, total uranium, total plutonium, gross alpha and gross beta. In addition to the soil bores, surface scrapes 2 inches deep will be taken at the same location as the soil borings and analyzed for the same constituents as required for the soil boring composites. At least two of the boreholes shall be completed as down-gradient alluvial monitoring wells. The location and number of these wells shall be proposed in the RFI/RI Workplan to be submitted in accordance with section I.B.9. of the Statement of Work. These wells shall be sampled immediately upon completion and quarterly thereafter. Groundwater samples shall be analyzed for total nitrate, HSL volatiles, gross alpha, gross beta, total plutonium, total uranium, tritium and HSL metals.	
126.1 Out-of-Service Process 126.2 Waste Tanks		1. Determine and document the types of wastes stored in these tanks during use.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
126 cont'd		2. Conduct a soil sampling survey of the areas affected by sites 126.1 and 126.2. One soil bore will be placed downgradient of each tank associated with site 126 and will be drilled to a depth 10 feet below the bottom of each tank. The soil samples shall be composited to define each 2 foot interval and will be analyzed for HSL volatiles. In addition, the soils shall be composited to represent six foot intervals and shall be analyzed for nitrates, total americium, beryllium, total uranium, total plutonium, gross alpha and gross beta. In addition to the soil bores, surface scrapes 2 inches deep will be taken at the same location as the soil borings and analyzed for the same constituents as required for the soil boring composites. The most downgradient borehole shall be completed as a downgradient alluvial monitoring well. The location of this well shall be proposed in the RFI/RI Workplan to be submitted in accordance with section I.B.9. of the Statement of Work. This well shall be sampled immediately upon completion and quarterly thereafter. Groundwater samples shall be analyzed for total nitrate, HSL volatiles, gross alpha, gross beta, total plutonium, total uranium, tritium and HSL metals. Initial results of the groundwater sampling and analysis shall be submitted with the PSC report for this group of sites.	
127	Low Level Radioactive Waste Leak	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of site 127. The survey shall be conducted using 10 foot grids and will cover the entire area affected by site 127. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. If surfacing has been placed over the soils affected	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
127 cont'd		by releases from this site, 2" surface scrapes will be taken prior to constructing the required boreholes for this site. 2. Conduct a soil sampling survey of the areas affected by site 127. Place 5 soil borings 20 feet apart within the boundaries of the site. Collect a 2" surface scrape of the soils before constructing the soil borings. The surface scrape sample shall be analyzed for total plutonium, total uranium, gross alpha, gross beta, HSL metals and total nitrate. The soil borings will extend to 10 feet below the pipe invert carrying low level waste between 995 and 774 or three feet into weathered bedrock, whichever is greater. The soil samples will be composited to represent each 2 foot increment of depth and will be analyzed for total plutonium, total uranium, gross alpha, gross beta, and total nitrate.	
132	Radioactive Site #4 - 700	1. Conduct a soil sampling survey of the areas affected by site 132. Soil bores will be placed around each tank associated with site 132 and will be drilled to a depth 10 feet below the bottom of each tank or 3 feet into weathered bedrock, whichever is greater. The soil samples shall be composited to define each six foot interval and will be analyzed for total americium, total beryllium, total uranium, total plutonium, total alpha and total beta.	
135	Cooling Tower Blowdown	1. Verify the location of site 135 as either north or south of building 374. 2. Conduct a soil sampling survey of site 135 utilizing soil borings drilled to a depth of 6 feet. Borings will be	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
135 cont'd		placed on 50 foot centers. Samples will be composited to represent 2 foot intervals and will be analyzed for total chromium. A 2 inch surface scrape will be taken prior to drilling at each grid location and will be analyzed for total chromium.	
137	Cooling Tower Blowdown Building 774	1. Conduct a soil sampling survey of site 137 utilizing soil borings drilled six feet deep. Borings will be placed on 50 foot centers. Samples will be composited to represent 2 foot intervals and will be analyzed for total chromium. A 2 inch surface scrape will be taken prior to drilling at each grid location and will be analyzed for total chromium.	
138	Cooling Tower Blowdown Building 779	1. Conduct a soil sampling survey of site 138 utilizing soil borings drilled to a depth of 6 feet. Borings will be placed on 25 foot centers. Samples will be composited to represent 2 foot intervals and will be analyzed for total chromium. A 2" surface scrape will be taken prior to drilling at each grid location and will be analyzed for total chromium.	
139.1 139.2	Caustic/Acid Spills	1. Collect soil samples from the top six inches of soil at sites 139.1 and 139.2. These samples shall be taken from soils directly surrounding the source tanks and from soils affected by the sites. The soils affected by sites 139.1 and 139.2 will be sampled using 25 foot grids and shall be analyzed for sodium, potassium, and fluoride.	
144	Sewer Line Break	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983.	
		2. Conduct a radiation survey using a G-M	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
144 cont'd		shielded pancake detector and side-shielded FIDLER of the areas affected by site 144. The survey shall be conducted using 10 foot grids and will cover all areas affected by site 144 including the hillside referred to in the CEARP Phase I: Installation Assessment, Rocky Flats Plant. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation.	
		3. Conduct a soil sampling survey of all areas affected by site 144 including the hillside 500 feet north, utilizing surface soil scrapings collected at "hotspot" locations identified through the radiation survey and prior to construction of each borehole. Two boreholes shall be located adjacent to the sewer line and shall be drilled to 5 feet below the invert of the pipe or three feet into weathered bedrock, whichever is deeper. Four boreholes shall be located on the affected hillside and shall be drilled three feet into weathered bedrock. The soil cores shall be composited to represent 2 feet of soil and analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, HSL metals, and total sulfate.	
146.1 146.2 146.3 146.4 146.5 146.6	Concrete Process Waste Tanks	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983.	
		2. Verify the location of these tanks.	
		3. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 146. The survey	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
146 cont'd		shall be conducted using 10 foot grids and will cover all areas affected by site 146 including the road and ground surfaces affected by the overflows of these tanks. If concrete or asphalt surfacing exists over affected soils, the surface soils will be sampled prior to constructing the required boreholes. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 4. Conduct a soil sampling survey of all areas affected by site 146 including the areas affected by the tank overflows, utilizing surface soil scrapings to a depth of 2 inches and soil cores composited to represent each 2 feet of soil. The boreholes will be drilled to a depth of 10 feet below the tank inverts or to below the bottom of the building, whichever is required to assess the contamination of the soils related to this site. The location of six boreholes shall be proposed in the Workplan after verifying the location of these tanks. For three of the six boreholes, the core samples shall be composited to represent two foot intervals. These two foot composites shall be analyzed for HSL volatiles and HSL semi-volatiles. For all six boreholes the soils shall be composited to represent six foot intervals. The borehole composites and surface scrapes shall be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, total sodium, total sulfate and HSL metals.	
149	Effluent Pipe	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
149 cont'd		for this site. 2. Submit all soil survey information pertinent to this site aquired during the investigations of the solar ponds. 3. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 149. The survey shall be conducted using 10 foot grids and will cover all areas affected by site 149 including the ground surfaces affected by the leakages of this line. If concrete or asphalt surfacing exists over affected soils, the surface soils shall be sampled prior to construcing the boreholes required for this site. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 4. Conduct a soil sampling survey of the soils affected by site 149 utilizing cores drilled to a depth of 5 feet below the invert of the waste line(s) which resulted in the release at this site or three feet into weathered bedrock, whichever is greater. Eleven boreholes shall be located on 50' centers along the downgradient side of the effluent pipe. The soil core samples shall be composited to represent 2 feet of soil. The two foot composite core samples will be analyzed for HSL volatiles. The soil cores shall also be composited to represent six foot intervals. The six foot cores and the surface scrapes shall be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and HSL metals.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
150 150.1 150.2 150.3 150.4 150.5 150.6 150.7 150.8	Radioactive Liquid Leaks North of Bldg. 771, West of Bldg. 771, Between Bldgs. 771 and 774, East of Bldg. 750, West of Bldg. 707, South of Bldg. 779, South of Bldg. 776, Northeast of Bldg. 779	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for these sites. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 150. The survey shall be conducted using 25 foot grids and will cover all areas affected by site 150 including the ground surfaces affected by runon and spillage. If surfacing exists over affected soils, surface samples shall be taken prior to constructing the boreholes required for this site. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of all areas affected by site 150 utilizing surface soil scrapings to a depth of 2" and soil cores drilled three feet into weathered bedrock. Soil cores shall be composited to represent two foot intervals and shall be analyzed for HSL volatiles. Soil cores shall also be composited to represent six foot intervals. The six foot soil core composites and the 2" surface scrapes for all boreholes shall be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, total sodium, total sulfate and HSL metals. Nine boreholes constructed on 50'centers shall be located to transect site 150.1. Twenty boreholes constructed on 50' centers shall be located to transect site 150.2. Two rows of three boreholes shall be constructed to characterize site 150.3.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
150 cont'd		Two rows of four boreholes shall be constructed to characterize site 150.4. Ten boreholes constructed on 75' centers shall be located to transect site 150.5. Two rows of four boreholes shall be constructed to characterize site 150.6. Ten boreholes constructed on 50' centers shall be located to transect site 150.7. Three boreholes constructed on 40' centers shall be located to transect site 150.8. The surface and core samples will also be collected from "hotspots" located during the radiometric survey.	
151	Fuel Oil Leak	1. Complete a real time soil gas analysis over the entire area of site 151 using 10 foot grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey will analyze for the volatiles benzene, toluene and xylene. The analysis will note analytical peaks for compounds not calibrated for on the GC. Four boreholes shall be constructed to characterize the soils on all sides of the fuel oil tank. The boreholes shall be drilled to a depth five feet below the bottom of the tank or three into weatered bedrock, whichever is deeper. Composite samples shall be taken from every 2 foot interval and analyzed for HSL volatiles utilizing calibrated GC/MS.	
159	Radioactive Site-Bldg. 559	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for this site. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 159. The survey shall be conducted using 10 foot grids and will cover all the areas affected by site 159.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
159 cont'd		If "hotspots" are detected, the grid must be tightened to located the source of the radiation. 3. Conduct a soil sampling survey of the soils affected by site 159 utilizing cores drilled to a depth of 5 feet below the invert of the waste line(s) or three feet into weathered bedrock, whichever is deeper. Borehole core samples will be composited to represent 2 feet of soil. The two foot composites shall be analyzed for HSL volatiles. Borehole core samples shall also be composited to represent six foot intervals of soil. The 2" surface scrapes and the six foot composites shall be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and HSL metals. Two inch surface scrapes shall be sampled prior to constructing all boreholes and where surfacing exists to prevent the radiation survey.	
163.1 163.2	Radioactive Sites #3: Wash Area and Buried Slab	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities 2. Investigate and determine the nature of the soil/soil mounds north of 163.1 and east of 163.2 which are identified in the 1969 and 1971 aerial photographs. 3. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 163.1. The survey shall be conducted using 25 foot grids and shall cover all areas affected by site 163.1. If surfacing exists over affected soils, the 2" surface samples shall be taken prior to construction of the required boreholes. If "hotspots"	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
163 cont'd		are detected, the grid must be tightened to locate the source of the radiation. 4. Conduct a soil sampling survey of all areas affected by site 163.1 utilizing surface soil scrapings to a depth of 2 inches and boreholes drilled four feet deep. The borehole soil cores shall be composited to represent each 2 foot interval of soil. The surface and core samples will be collected at locations indicated as radioactive after conducting the radioactive survey. The samples will be analyzed for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha and gross beta.	
172	Central Avenue Waste Spill	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 172. The survey shall be conducted along the Central avenue and 6th Street roadsides and all other roadsides utilized to transport the wastes from the 903 Pad Area to Bldg. 771. The survey shall also examine the surface water drainages next to the north and westbound lanes of the roads utilized. Both the roadside and surface water drainage surveys shall utilize 50 foot grid intervals. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. The survey shall utilize 5 foot grid intervals within 50 feet of stopping and unloading points. 2. Conduct a soil and asphalt sampling survey. Soil and asphalt sampling shall be conducted at locations indicated as radioactive during the radiometric survey and at stopping and unloading points along the route. The soil samples shall be analyzed for HSL metals	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
172 cont'd		carbon tetrachloride, bis(2-ethylhexyl) phthalate, total plutonium, uranium 233/234, uranium 235, uranium 238, beryllium, gross alpha and gross beta. The asphalt samples shall be taken at areas indicated as radioactive during the radiometric survey and on 5 foot grid intervals within 50 feet of stopping and unloading points along the route. These asphalt samples shall be analyzed for the same constituents as for the soil samples, with the exception of the carbon tetrachloride and bis(2-ethylhexyl) phthalate.	
173	Radioactive Site-900 Area	1. Submit information substantiating the characterization of this unit as a SWMU subject to HSWA corrective action. 2. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for site 173. Submit the results of the routine radiation surveys conducted in Bldg. 991. 3. Conduct radiation surveys using a G-M shielded pancake detector and a side-shielded FIDLER, device of all areas affected by site 173. The survey shall be conducted using 25 foot grid intervals and will cover all areas external to Bldg. 991. At radiation survey sites indicating radioactive contamination, soil samples, surfacing (i.e. asphalt or concrete) samples or surface wipes will be taken to determine the radioactive constituents responsible for the positive radiation reading. The type of sample taken will be dependent on whether the radiation survey site is located on the soil, or on surfacing. Soils shall be grab sampled. Asphalt, concrete and/or structural surfaces shall be wipe samples. All samples will be analyzed for total plutonium, total uranium,	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
173 cont'd		total americium, total cesium, total strontium, beryllium, tritium, gross alpha and gross beta.	
184	Bldg. 991 Steam Cleaning	1. Submit the report(s) documenting the radiometric survey(s) conducted which indicate that the radioactivity is not above background for this site. 2. Investigate the spillage identified as emanating from site 184 in the 8/6/71 aerial photograph. 3. Incorporate the investigation of site 184 into the radiometric investigation to be conducted at site 173.	
188	Acid Leak	1. Submit documentation describing the nature of the acid leak (i.e. describe whether the acid mixture is a waste acid, and whether it contained any other metals or dissolved constituents, etc.?). 2. Document any cleanup activity which took place at the time of the incident or after the incident to minimize environmental degradation.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 9-Original Process Waste Lines

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
121	Original Process Waste Lines	1. Close the regulated units in accordance with this Agreement and the regulations. 2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment. 3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	1. As required by section I.B.11 of the SOW. 2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 10-Other Outside Closures

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
124 124.1 124.2 124.3	Radioactive Liquid Waste Storage Tanks	1. Close the regulated units in accordance with this Agreement and the regulations.	1. As required by section I.B.11 of the SOW.
129	Oil Leak	2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment.	2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.
174	P&UD Container Storage		
175	S&W Bldg. 980 Container		
176	S&W Contractor Storage Yard		
177	Bldg. 885 Drum Storage Area		
181	Bldg. 334 Cargo Container		
182	Bldg. 444/453 Drum Storage		
170	PU&D Storage Yard Waste Spills	3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	
205	Bldg. 460 Sump #3 Acid Side		
206	Inactive Tank D-836		
207	Inacative 444 Acid Dumpster		
208	Inactive 444/447 Waste Storage Area		
210	Unit 16, Bldg. 980 Cargo Container		
213	Unit 15, 904 Pad Pondcrete Storage		
214	Unit 25, 750 Pad Pondcrete and Saltcrete Storage		

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 11-West Spray Field

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
168	West Spray Field	1. Close the regulated units in accordance with this Agreement and the regulations. 2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment. 3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	1. As required by section I.B.11 of the SOW. 2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 12-400/800 Area Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
116.1 116.2	Multiple Solvent Spills at West and South Loading Dock Areas	1. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for sites 116.1 and 116.2. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of sites 116.1 and 116.2. The survey must be conducted using 25 foot grid intervals and will cover the entire areas of sites 116.1 and 116.2. If surfacing exists over affected soils, 2" surface scrapes shall be collected prior to construction of the boreholes required for this site. The 2" inch surface scrapes shall be analyzed for total uranium, gross alpha and gross beta. Submit all previously collected radiation data pertinent to this site. 3. Complete a real time soil gas analysis over the entire area of both sites using 25 foot grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey will analyze for the volatiles 1,1,1 TCA, benzene, carbon tetrachloride, PCE, and TCE. The analysis will note analytical peaks for compounds not calibrated for on the GC. Boreholes will be constructed to transect any plume defined during the soil gas analysis. These boreholes shall be completed as groundwater monitoring wells constructed to collect alluvial groundwater. These alluvial groundwater monitoring wells shall be sampled immediately upon completion and analyzed for HSL volatiles, gross alpha and gross beta. The groundwater shall continue to be sampled and analyzed for the above constiuents	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit the Phase I RFI/RI Report in accordance with the schedules within Table 6 of the SOW. This agreement. This report shall include all data collected as a result of and required by this preliminary workplan for this group of sites.

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
116 cont'd		on a quarterly basis. Boreholes shall also be constructed on a random basis after every 20 soil gas surveys to verify the presence or non-presence of HSL volatiles and HSL semi-volatiles at the specific location. The soil borings shall be drilled three feet into weathered bedrock. 2" surface scrapes shall be collected prior to constructing the boreholes and analyzed for total uranium, gross alpha and gross beta. Composite samples shall be collected from every 2 foot interval and analyzed for HSL volatiles and HSL semi-volatiles utilizing calibrated GC/MS. The uppermost two foot composite shall be anlayzed for total uranium, gross alpha and gross beta.	
120.1 120.2	Building 664 Fiberglassing Areas	1. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for sites 120.1 and 120.2. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of sites 120.1 and 120.2. The survey must be conducted utilizing 25 foot grid intervals. If the affected soils have been covered by asphalt or concrete, 2" surface scrapes shall be taken at borehole locations required to be constructed by this workplan. 2" surface scrapes shall also be taken at all radiation survey locations indicating a positive radiation finding. The 2" surface scrapes shall be analyzed for total plutonium, total uranium, gross alpha and gross beta. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
120 cont'd		3. Complete a real time soil gas analysis over the entire area of sites 120.1 and 120.2 using 25 foot grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey will analyze for benzene, carbon tetrachloride,methylethyl ketone peroxide, styrene and TCE. The analysis will note analytical peaks for compounds not calibrated for on the GC. Boreholes shall be constructed to transect plumes identified by the soil gas analysis and on a random basis every 25 soil gas surveys to verify the presence or non-presence of volatiles at the specific location. The boreholes shall be drilled three feet into the weathered bedrock. Composite samples shall be taken from every 2 foot interval and analyzed for HSL volatiles and HSL semi-volatiles utilizing calibrated GC/MS.	
136.1 136.2 136.3	Cooling Tower Ponds Northeast, South and West of Building 460	1. Submit the results of the aerial radiological survey conducted in August 1981 and documented by E,G&G, 1982. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas associated with sites 136.1, 136.2 and 136.3. If these sites are presently covered by an asphalt or concrete surfacing, 2" surface scrapes must be collected prior to constructing the required boreholes for these sites. The survey must be conducted using 10 foot grids and will cover the entire area affected by sites 136.1, 136.2, and 136.3. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of sites 136.1, 136.2 & 136.3 utilizing soil borings drilled three feet into weathered bedrock. The borings shall be	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
136 cont'd		located as close to the unit sources as possible. Borings shall be placed on 20 foot centers and shall be composited to represent 2 foot intervals. 2" surface scrapes shall be collected prior to constructing the boreholes. The borehole composites and the 2" surface scrapes shall be analyzed for total chromium, total uranium, total lithium, gross alpha, and gross beta.	
147.1 147.2	Process Waste Leaks; Maas and Owen Areas	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for these sites. 2. Investigate and report the nature of the seeping to the ditch identified in the 1978 aerial photograph shown east of site 147.1 at the road entering the PSZ. This seep shall be investigated as for item (3) below. Clarify what "conversion" processes were conducted at site 147.2. 3. Conduct a soil sampling survey of the soils affected by site 147.1 utilizing cores drilled to a depth of 5 feet below the invert of the waste line(s) which resulted in the release at this site or three feet into weathered bedrock, whichever is deeper. Prior to constructing the boreholes, 2" surface scrapes shall be collected and analyzed for total plutonium, beryllium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta and HSl metals. Ten boreholes shall be located immediately downgradient of the pipeline within the site boundary, spaced on 20' centers. Three boreholes shall be located within the spill area identified in the 1978 aerial photograph. The boreholes samples shall be composited to represent 2 feet of soil. The two foot composites shall be analyzed for	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
147 cont'd		HSL volatiles. The borehole cores shall also be composited to represent six foot intervals. The six foot composites shall be analyzed for total plutonium, total americium, beryllium, total chromium, tritium, total nitrate, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta, and HSL metals.	
157.2	Radioactive Site South Area	1. Submit the report(s) documenting the radioactive survey conducted from 1975 - 1983 and any cleanup activities for these sites. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 157.2. The survey shall be conducted using 25 foot grids and will cover all areas affected by site 157.2. If surfacing exists over affected soils, 2" surface scrapes shall be collected prior to constructing the boreholes required for this site. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of all areas affected by site 157.2 utilizing surface soil scrapings to a depth of 2 inches and boreholes drilled three feet into weathered bedrock. Boreholes and surface scrapes shall be located at "hotspots" located during the radiomentric survey of this site. The workplan to be submitted for this group of sites shall also propose locations for boreholes to be located near loading docks and storage areas previously and presently used at this site. The boreholes shall be composited to represent 2 feet of soil. The two foot composites shall be analyzed for HSL volatiles. The boreholes shall also be	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
157.2 cont'd		composited to represent six foot intervals. The six foot composite samples and 2" surface scrapes shall be analyzed for total plutonium, beryllium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta and bis(2-ethylhexyl) pthalate.	
187	Acid Leaks (2)	1. Submit documentation describing the nature of the acid leaks (identify whether these were waste acids, product acids, and whether they contained any other metals or dissolved constituents, etc.?).	
189	Multiple Acid Spills	1. Submit documentation describing the nature of the acid spills (identify whether these waste acids, product acids, and whether they contained any other metals or dissolved constituents, etc.?).	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 13-100 Area

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
117.1 117.3	Chemical Storage, North and South Sites	1. Provide information documenting the kinds of material/chemicals stored at these two sites. Provide the information utilized to preliminarily determine wheter these sites require further investigation.	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit the Phase I RFI/RI Report in accordance with the schedules within Table 6 of the SOW. This Phase I RFI/RI report shall include all data collected as a result of and required by this workplan for this group of sites.
117.1 117.2 117.3	Chemical Storage, North Middle and South Sites	1. Complete a real time soil gas analysis over the entire area of the 117 sites using 100'offset grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for TCA, benzene, carbon tetrachloride, dichloromethane, PCE and TCE. The analysis will note analytical peaks for compounds not calibrated for on the GC. Boreholes shall be constructed to transect the plumes identified during the soil gas analysis. The transecting boreholes shall be completed as alluvial ground water monitoring wells. The alluvial groundwater shall be sampled immediately upon completion and quarterly thereafter, and analyzed for HSL volatiles and HSL semi-volatiles, as well as gross alpha and gross beta. Boreholes shall be constructed at the location of the soil gas analysis on a random basis after every 25 soil gas surveys to verify the presence or non-presence of HSL volatiles and HSL semi-volatiles at the specific location. All soil borings shall be drilled three feet into weathered bedrock. Borehole composite samples shall be taken from every 2 foot interval and analyzed for HSL volatiles	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
117 cont'd		and HSL semi-volatiles utilizing calibrated GC/MS. The 2 foot composites shall also be analyzed for gross alpha and gross beta.	
122	Underground Concrete Tank(s)	1. Locate and describe all underground tanks associated with site 122, including the specific waste streams handled by these tanks. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of site 122. The survey shall be conducted using 10 foot grids and shall cover the entire area of site 122. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. If the affected soils are covered with surfacing, 2" surface scrapes shall be collected prior to constructing the boreholes required for this site. 3. Conduct a soil sampling survey after locating the underground tanks. Four boreholes shall be placed around each tank associated with site 122 and shall be drilled to a depth 10 feet below the bottom of each tank or three feet into weathered bedrock, whichever is deeper. The soil samples shall be composited to define each 2 foot interval and shall be analyzed for HSL volatiles and nitrates. The soil samples shall also be composited to represent six foot intervals. The 2" surface scrapes and six foot composites shall be analyzed for total uranium, total plutonium, gross alpha and gross beta.	
128	Oil Burn Pit No. 1 Waste Leak	1. Reevaluate the location of site 128 in light of the 7/2/55 aerial photograph of the facility. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
128 cont'd		shielded FIDLER of site 128. The survey shall be conducted using 10 foot grids and shall cover the entire area affected by site 128. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Complete a real time soil gas analysis over the entire area of site 128 using 25 foot grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds will be proposed in the Workplan. The soil gas survey shall analyze for the volatiles benzene, toluene, and xylene. The analysis will note analytical peaks for compounds not calibrated for on the GC. Boreholes shall be constructed to transect plumes identified by the soil gas analysis or the radiation survey. At least three boreholes shall be constructed to verify the presence or non-presence of volatiles or radioactive materials at specific locations within the site. The boreholes shall be drilled three feet into the weathered bedrock. Composite samples shall be collected from every 2 foot interval and analyzed for HSL volatiles and HSL semi-volatiles utilizing calibrated GC/MS. The two foot composite samples shall also be analyzed for total uranium and total lithium.	
134	Lithium Metal Destruction Site	1. To be investigated in same manner as for site 128 above.	
148	Waste Spills	1. Submit the report(s) documenting the radiometric survey(s) conducted which have found radioactivity levels to be consistent with background levels. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of site 148. The survey shall be conducted using 10 foot spacing	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
148 cont'd		around building 123 and will cover the entire area affected by site 148. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. If surfacing exists over grid locations, 2" surface scrapes shall be collected prior to constructing the boreholes required for this site. 3. Conduct a soil sampling survey of site 148 utilizing soil borings drilled to a depth of 2 feet. The soil borings shall be drilled at locations proposed in the workplan for this group and at sites found to be radioactive after completion of the radiation survey. Soil cores shall be composited to represent 6" of soil. The 2" surface scrapes and the 6" composites shall be analyzed for total plutonium, total americium, uranium 238, uranium 235, uranium 233/234, gross alpha and gross beta.	
152	Fuel Oil Tank	1. Complete a real time soil gas survey over the entire area of site 152 using 20 foot spacing around the fuel oil tank. The soil gas analysis will utilize a portable GC. The detection limits for the folowing compounds shall be proposed in the Workplan. The survey shall analyze for benzene, toluene and xylene. The analysis will note analytical peaks for compounds not calibrated for on the GC. 2. Conduct a soil sampling survey of the area affected by site 152 utilizing 6 foot cores composited to represent 6 feet of soil. Three boreholes shall be located around the fuel oil storage tank to characterize the source soils and to determine the downgradient release of contaminants from this site. The samples will be analyzed by GC/MS for HSL volatiles. The report will note analytical peaks found which were not calibrated for on the GC/MS.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
157.1	Radioactive Site North Area	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for this site. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 157.1. The survey shall be conducted using 25 foot grids and shall cover the areas affected by site 157.1. If surfacing exists over the affected soils, 2" surface scrapes shall be collected prior to constructing the boreholes required for this site. If "hotspots" are detected, the grid must be tightened to locate the source of contamination. 3. Conduct a soil sampling survey of all areas affected by site 157.1 utilizing surface soil scrapings to a depth of 2 inches and 6 foot boreholes. The boreholes shall be composited to represent the entire six foot interval and three two foot intervals. The surface scrape and borehole locations shall be proposed in the workplan for this group. Boreholes and surface scrapes shall also be constructed and collected at "hotspots" located during the radiometric survey. The 2' foot composites shall be analyzed for HSL volatiles. The six foot composite shall be analyzed for total plutonium, beryllium, uranium 238, uranium 235, uranium 233/234, gross alpha, gross beta.	
158	Radioactive Site-Bldg. 551	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 158. The survey shall be conducted using 25 foot grids and shall cover all areas affected by site 158. If surfacing exists over	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
158 cont'd		affected soils, 2" surface scrapes shall be collected prior to construction of boreholes required at this site. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 2. Complete a real time soil gas analysis over the entire area of site 158 using 25 foot grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for the volatiles 1,1,1 TCA, PCE, carbon tetrachloride, acetone, toluene and benzene. The analysis shall note analytical peaks for compounds not calibrated for on the GC. Boreholes shall be constructed to transect plumes identified by the soil gas analysis or the radiation survey. At least three boreholes shall be constructed to verify the presence or non-presence of volatiles or radioactive materials at specific locations within the site as determined by the radiation and soil gas surveys of the site. The boreholes shall be drilled three feet into the weathered bedrock. Composite samples shall be collected from every 2 foot interval and analyzed for HSL volatiles and HSL semi-volatiles utilizing calibrated GC/MS. Prior to constructing the boreholes, 2" surface scrapes shall be collected and analyzed for total uranium, total plutonium, gross alpha and gross beta.	
169	Waste Peroxide Drum Burial	1. Locate the drum containing waste peroxide.	
171	Solvent Burning Ground	1. This site shall be investigated in the same manner as for sites 128 and 134. The soil gas survey shall also include capability to detect PCE, 1,2 DCA, chloroform, carbon tetrachloride, TCE,	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
171 cont'd		and methylene chloride. One borehole shall be located within this site to verify the presence or non-presence of solvents and radioactive constituents at this site.	
186	Valve Vault 12	1. Submit documentation describing the cleanup operations completed and those described as continuing in Appendix I, 3004(u) Waste Management Units, Volume I. 2. Conduct a soil sampling survey of all areas affected by site 186 utilizing soil cores drilled to 5 feet below the invert of the waste line(s) which leaked, or three feet into weathered bedrock, whichever is deeper. The core samples shall be composited to represent 2 feet of soil and shall be analyzed for HSL volatiles. The boreholes shall also be composited to represent six foot intervals shall be analyzed for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha, gross beta and HSL metals. The boreholes shall be located using 25 foot spacing.	
190	Caustic Leak	1. Submit documentation describing the nature of the caustic leaks (i.e. describe whether these were waste or product solutions, and whether they contained any other metals or dissolved constituents).	
191	Hydrogen Peroxide Spill	1. Submit documentation describing the nature of the hydrogen peroxide (i.e. describe whether the peroxide was waste or product solution, and whether it contained any other dissolved constituents).	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 14-Radioactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
131	Radioactive Site #1 700 Area	1. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for site 131. 2. Investigate and document the location of this site. CEARP phase I and II locate this area north of building 776, while the RI/FS Plans for Low Priority Sites suggests that the area to be investigated is north and west of building 776. 3. Conduct a soil sampling survey of site 131 utilizing soil borings drilled two feet below the natural surface on 25 foot centers. Borehole samples shall be composited to represent the two foot interval. 2" surface scrapes shall be collected prior to constructing the boreholes required for this site. The surface scrapes and borehole composites shall be analyzed for total plutonium, total americium, uranium 238, uranium 235, uranium 233/234, gross alpha and gross beta. If the natural soils are covered by an artificial surface, a 2" surface scrape of the soil below the artificial surfacing will also be collected and analyzed for the same constituents as are required above for the soil borings at this site.	1. Submit an RFI/RI Workplan in accordance with section VI. of the Statement of Work. Submit the Phase I RFI/RI Report in accordance with the schedules in Table 6 of the SOW. This Phase I RFI/RI report shall include all data collected as a result of and required by this workplan for this group of sites.
156 156.1 156.2	Radioactive Soil Burial Bldg. 334 Parking Lot Soil Dump Area	1. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by site 156.2. The survey shall be conducted using 25 foot grids and will cover the all areas affected by site 156.2. Site 156.1 shall be surveyed for radiation during the soil sampling survey. If "hotspots" are	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
156 cont'd		detected, the grid must be tightened to locate the source of the radiation. 2. Conduct a soil sampling survey of all areas affected by site 156.1 utilizing undisturbed surface soil scrapings to a depth of 2". Conduct a soil sampling survey of site 156.2 utilizing surface scrapings of undisturbed soil to a depth of 2" and boreholes drilled three feet into the undisturbed soils beneath the waste piles of the soil dump area. The soil cores shall be composited to represent 2 feet of soil. The surface scrapes for site 156.1 shall be collected using 50 foot grids. The surface scrapes and boreholes for site 156.2 shall be be located on 50' centers around the perimeter of the site where dumping has occurred. The boreholes and surface scrapes for site 156.2 shall also be taken from "hotspots" located during the radiometric survey. All samples will be analyzed for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha and, gross beta.	
160 161	Bldg. 444 Parking Lot Bldg. 664	1. Submit the report(s) documenting the radiometric survey conducted from 1975 - 1983 and any cleanup activities for these sites. 2. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for site 161. 3. Complete a real time soil gas analysis over the entire areas of sites 160 and 161 using 50' offset grid intervals. The soil gas analysis will utilize a portable GC. The detection limits for the following compounds shall be proposed in the Workplan. The soil gas survey shall analyze for the volatiles	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
160/161 cont'd		1,1,1 TCA, PCE, carbon tetrachloride, acetone, toluene and benzene. The analysis shall note analytical peaks for compounds not calibrated for on the GC. Boreholes shall be constructed to transect plumes identified by the soil gas analysis. Boreholes shall be constructed, on a random basis, to investigate one of every 25 soil gas survey locations to verify the presence or non-presence of volatiles or radioactive materials at specific locations within the site. Boreholes shall also be constructed to transect any plume identified after conducting the soil gas survey. All boreholes shall be drilled three feet into the weathered bedrock. Composite samples shall be collected from every 2 foot interval and analyzed for HSL volatiles and HSL semi-volatiles utilizing calibrated GC/MS. A six foot composite shall also be collected from the uppermost interval of soil. Prior to constructing the boreholes, 2" surface scrapes shall be collected. The upper six feet and the 2" surface scrape shall be analyzed for total uranium, total plutonium, gross alpha and gross beta. The transecting boreholes shall be completed as alluvial groundwater monitring wells. The wells shall be sampled and analyzed immediately upon completion and quarterly thereafter. The groundwater samples shall be analyzed for HSL volatiles, HSL semi-volatiles, HSL metals,total plutonium, total uranium, gross alpha and gross beta. 4. Determine and verify the destination of the soils excavated during the removal activities described as occurring in the early 1970s.	
162	Radioactive Site 700 Area Site #2	1. Submit all documentation identifying where the radioactive areas are and what	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
162 cont'd		was done to 8th street. 2. Locate, sample and mark the radioactive portions of 8th Street which were covered by road surfacing.	
164 164.1 164.2 164.3	Radioactive Sites-800 Area Concrete Slab Bldg. 886 Spills Bldg. 889 Storage Pad	1. Submit the results of the Aerial Radiological Measuring System (ARMS) survey which documented the elevated gamma-radiation exposure rates for site 164.1. 2. Conduct a radiation survey using a G-M shielded pancake detector and side-shielded FIDLER of the areas affected by sites 164.1, 164.2 and 164.3. The survey shall be conducted using 25 foot grids and will cover the all areas affected by these sites. If surfacing exists over affected soils, 2" surface scrapes shall be collected prior to constructing boreholes required for this site. If the surfacing has been affected the surfacing shall be sampled and analyzed for radioactive constituents. If "hotspots" are detected, the grid must be tightened to locate the source of the radiation. 3. Conduct a soil sampling survey of all areas affected by sites 164.1, 164.2 and 164.3 utilizing surface soil scrapings to a depth of 2 inches and 6 foot boreholes composited to represent 2 feet of soil and six feet of soil. The surface and borehole composite samples shall be collected at locations indicated as radioactive after conducting the radioactive survey. The workplan to be submitted for this group of sites shall propose borehole locations for those radiation survey grid locations which are presently covered with surfacing. The six foot borehole composite and surface scrape samples shall be analyzed	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
164 cont,d		for total plutonium, total americium, uranium 233/234, uranium 235, uranium 238, gross alpha, and gross beta. The two foot composites shall be analyzed for HSL volatiles and HSL semi-volatiles.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 15-Inside Building Closures

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
178	Bldg. 881 Drum Storage Area	1. Close the regulated units in accordance with this Agreement and the regulations.	1. As required by section I.B.11 of the SOW.
179	Bldg. 865 Drum Storage Area	2. Submit Phase I and Phase II RFI/RI reports documenting investigations for each site in accordance with the schedules within Table 6 of this Attachment. The Phase I and Phase II reports shall at a minimum contain information to characterize the nature, rate and extent of contamination; define pathways and methods of migration; identify areas threatened by releases from the facility; and determine short and long-term threats to human health and the environment.	2. Submit RFI/RI Workplans in accordance with section I.B.11. and Table 6 of the SOW. Submit the required reports and close the units in accordance with the schedules in Table 6 of the SOW.
180	Bldg. 883 Drum Storage Area		
204	Original Uranium Chip Roaster		
211	Unit 26, Bldg. 881 Drum Storage		
212	Unit 63, Bldg. 371 Drum Storage		
215	Tank T-40, Unit 55.13		
217	Unit 32, Bldg. 881 Cyanide Bench Scale Treatment	3. Submit all Phase I and Phase II Closure/Interim Measure/Interim Remedial Action reports as required by section I.B.11. of the SOW, and in accordance with the schedule requirements within Table 6 of the SOW.	

Table 5: Preliminary RFI/RI Workplan for Previously Identified Inactive Sites

Operable Unit 16-Low Priority Sites

SITE NUMBER	SITE NAME	REQUIRED ACTION	REQUIRED COMPLETION/SUBMITTAL DATE
185	Solvent Spill	1. Submit documentation required to substantiate the cleanup of this site and justify whether further action is required for this site.	1. Submit the documentation and data required to justify whether further action is required for the sites within this site group. If the data submitted does not allow a no further action determination to be made, then further action shall be required by EPA and CDH.The documentation must be submitted in accordance with the schedules in Table 6 of the SOW.
192	Antifreeze Discharge	1. Submit documentation justifying whether further action is appropriate for this site.	
193 194	Steam Condensate Leaks	1. Submit documentation justifying whether further action is appropriate for this site.	
195	Nickel Carbonyl Disposal	1. Submit documentation justifying whether further action is appropriate for this site.	
196	Water Treatment Plant Backwash Pond	1. Submit documentation justifying whether further action is appropriate for this site.	
197	Scrap Metal Sites	1. Submit documentation justifying whether further action is appropriate for this site.	

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 1
881 HILLSIDE

OU 1 PHASE III RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION (RFI/RI)	
Submit Draft Phase III RFI/RI Work Plan	February 6, 1990
Submit Final Phase III RFI/RI Work Plan	October 30, 1990
Submit Draft Phase III RFI/RI Report	July 30, 1992
Submit Final Phase III RFI/RI Report	January 4, 1993
OU 1 CORRECTIVE MEASURES STUDY/FEASIBILITY STUDY (CMS/FS)	
Submit Draft CMS/FS Report	March 31, 1993
Submit Final CMS/FS Report	September 27, 1993
OU 1 CORRECTIVE AND REMEDIAL ACTION PROPOSED PLAN (PP)	
Submit Draft PP	September 27, 1993
Submit Final PP	January 4, 1994
Submit Responsiveness Summary	May 6, 1994
Submit Final Responsiveness Summary	August 3, 1994
OU 1 CORRECTIVE ACTION DECISION AND RECORD OF DECISION (CAD/ROD)	
Submit Draft CAD/ROD	August 3, 1994
Submit Final CAD/ROD	November 1, 1994
OU 1 CORRECTIVE/REMEDIAL DESIGN (CD/RD)	
Submit CD/RD Work Plan	November 1, 1994
Submit Draft Title II Design	July 5, 1995
Submit Final Title II Design	October 3, 1995

OU 1 CORRECTIVE/REMEDIAL ACTION

Begin Corrective/Remedial Action Construction	May 7, 1996
Complete Corrective/Remedial Construction	November 4, 1997
Submit Performance Assessment Report	February 10, 1998

OU 1 INTERIM MEASURE/INTERIM REMEDIAL ACTION (IM/IRA)

Submit Draft Proposed IM/IRA Decision Document	September 18, 1989
Submit Proposed IM/IRA Decision Document	October 6, 1989
Submit Final IM/IRA Decision Document	January 5, 1990
Submit IM/IRA Implementation Document	February 22, 1991
Begin Phase I-A IM/IRA Construction	January 15, 1990
Begin Phase I-B IM/IRA Construction	October 8, 1990
Begin Phase II-A IM/IRA Construction	April 1, 1991
Begin Phase II-B IM/IRA Construction	September 3, 1991
Complete IM/IRA Construction	March 2, 1992
Begin IM/IRA Testing	August 5, 1991

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 2
903 PAD, MOUND, & EAST TRENCHES

OU 2 PHASE II RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION (RFI/RI)	
Submit Draft Phase II RFI/RI Work Plan (Alluvial)	December 21, 1989
Submit Final Phase II RFI/RI Work Plan (Alluvial)	April 12, 1990
Submit Draft Phase II RFI/RI Work Plan (Bedrock)	February 5, 1991
Submit Final Phase II RFI/RI Work Plan (Bedrock)	July 2, 1991
Submit Draft Phase II RFI/RI Report	March 12, 1993
Submit Final Phase II RFI/RI Report	August 9, 1993
OU 2 CORRECTIVE MEASURES STUDY/FEASIBILITY STUDY (CMS/FS)	
Submit Draft CMS/FS Report	November 4, 1993
Submit Final CMS/FS Report	May 10, 1994
OU 2 CORRECTIVE AND REMEDIAL ACTION PROPOSED PLAN (PP)	
Submit Draft PP	May 10, 1994
Submit Final PP	August 9, 1994
Submit Responsiveness Summary	December 13, 1994
Submit Final Responsiveness Summary	March 16, 1995
OU 2 CORRECTIVE ACTION DECISION/RECORD OF DECISION (CAD/ROD)	
Submit Draft CAD/ROD	March 16, 1995
Submit Final CAD/ROD	June 15, 1995
OU 2 CORRECTIVE/REMEDIAL DESIGN (CD/RD)	
Submit CD/RD Work Plan	June 15, 1995
Submit Draft Title II Design	February 15, 1996
Submit Final Title II Design	June 14, 1996

OU 2 CORRECTIVE/REMEDIAL ACTION

Begin Corrective/Remedial Action Construction	January 20, 1997
Complete Corrective/Remedial Action Construction	July 20, 1998
Submit Performance Assessment Report	October 15, 1998

OU 2 INTERIM MEASURE/INTERIM REMEDIAL ACTION (IM/IRA)

Submit Draft Proposed IM/IRA Decision Document	June 19, 1990
Submit Proposed IM/IRA Decision Document	September 18, 1990
Submit Draft Responsiveness Summary	December 13, 1990
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	January 11, 1991
Field Treatability Test System Installation Complete	March 8, 1991
Begin Field Treatibility Testing	March 11, 1991
Submit Draft Treatability Test Report	April 1, 1992
Submit Final Treatability Test Program Report	June 2, 1992
Complete IM/IRA Construction	September 30, 1991
Begin Field Treatability Testing (Entire System)	October 30, 1991

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 3
OFF-SITE RELEASES

OU 3 DRAFT REMEDY REPORT	
Submit Draft Past Remedy Report	October 26, 1990
Submit Final Past Remedy Report	April 2, 1991
OU 3 HISTORICAL INFORMATION AND PRELIMINARY HEALTH RISK ASSESSMENT	
Submit Draft Historical Information and Preliminary Health Risk Assessment Report	November 9, 1990
Submit Final Historical Information and Preliminary Health Risk Assessment Report	April 16, 1991
OU PHASE I RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION (RFI/RI)	
Submit Draft Phase I RFI/RI Work Plan	May 16, 1991
Submit Final Phase I RFI/RI Work Plan	October 11, 1991
Submit Draft Phase I RFI/RI Report	July 16, 1993
Submit Final Phase I RFI/RI Report	December 13, 1993

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

SITE-WIDE ACTIVITIES

BACKGROUND STUDY	
Submit Draft Background Study Report (Water)	December 15, 1989
Submit Draft Background Study Report (Soils)	December 15, 1989
Submit Revised Background Study Report	December 21, 1990
COMMUNITY RELATIONS	
Submit Draft Community Survey Plan	January 23, 1990
Submit Final Community Survey Plan	March 22, 1990
Submit Draft Community Relations Plan	November 1, 1990
Submit Final Community Relations Plan	January 22, 1991
Submit Community Relations Plan Responsiveness Summary	June 21, 1991
HISTORICAL RELEASE REPORT	
Submit Draft Historical Release Report	January 8, 1992
Submit Final Historical Release Report	June 3, 1992
HEALTH AND SAFETY PLAN	
Submit Draft Health and Safety Plan	August 15, 1990
Submit Final Health and Safety Plan	November 12, 1990
PLAN FOR PREVENTION OF CONTAMINANT DISPERSION	
Submit Draft Plan for Prevention of Contaminant Dispersion	September 19, 1990
Submit Final Plan for Prevention of Contaminant Dispersion	February 21, 1991
Submit Responsiveness Summary on Plan for Prevention of Contaminant Dispersion	June 26, 1991

DISCHARGE LIMITS FOR RADIONUCLIDES (Work Plan)

Submit Draft Work Plan for Discharge Limits for Radionuclides	March 18, 1991
Submit Final Work Plan for Discharge Limits for Radionuclides	August 13, 1991
Submit Responsiveness Summary Discharge Limits for Radionuclides	December 17, 1991

SAMPLING AND ANALYSIS PLAN

Submit Draft Quality Assurance Project Plan	August 29, 1990
Submit Final Quality Assurance Project Plan	February 1, 1991
Submit Draft Standard Operating Procedures	August 29, 1990
Submit Final Standard Operating Procedures, Volume 1 - Field Operations, Volume 2 - Groundwater, Volume 3 - Geotechnical	February 1, 1991
Submit Final Standared Operating Procedures, Volume 4 - Surface Water, Volume 5 - Ecology	January 25, 1991
Submit Final Standard Operating Procedure, Volume 6 - Air	February 1, 1991
Submit Final Standard Operating Procedure Addendum for OU 2 Phase II RFI/RI Workplan	February 1, 1991
Submit Final Standard Operating Procedure Addendum for OU 1 Phase III RFI/RI Workplan	January 25, 1991

TREATABILITY STUDY

Submit Draft Treatability Study Plan	September 21, 1990
Submit Final Treatability Study Plan	February 25, 1991
Submit Draft Treatability Study Report	May 26, 1993
Submit Final Treatability Study Report	October 20, 1993

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 4
SOLAR PONDS

OU 4 SOLAR PONDS PHASE I RCRA FACILITY INVESTIGATION/ REMEDIAL INVESTIGATION (RFI/RI)	
Submit Draft Phase I RFI/RI Work Plan	June 8, 1990
Submit Final Phase I RFI/RI Work Plan	November 26, 1991
Submit Draft Phase I RFI/RI Report	May 21, 1993
Submit Final Phase I RFI/RI Report	October 18, 1993
OU 4 SOLAR PONDS PHASE I INTERIM MEASURE/INTERIM REMEDIAL ACTION	
Submit Draft Phase I Proposed IM/IRA Decision Document	April 14, 1994
Submit Phase I Proposed IM/IRA Decision Document	September 12, 1994
Submit IM/IRA Responsiveness Summary	January 25, 1995
Submit Phase I Final IM/IRA Decision Document and Final Responsiveness Summary	April 24, 1995
Submit IM Design Work Plan	May 24, 1995
Submit Phase I IM/IRA Implementation Document	February 26, 1996
Submit Final IM Title II Design	June 24, 1996
Begin Phase I IM/IRA Construction	January 28, 1997
OU 4 SOLAR PONDS PHASE II RFI/RI	
Submit Draft Phase II RFI/RI Work Plan	April 22, 1994
Submit Final Phase II RFI/RI Work Plan	September 19, 1994
Submit Draft Phase II RFI/RI Report	April 16, 1996
Submit Final Phase II RFI/RI Report	September 11, 1996

OU 4 SOLAR PONDS PHASE II CORRECTIVE MEASURES STUDY/ FEASIBILITY STUDY	
Submit Draft Phase II CMS/FS Report	December 5, 1996
Submit Final Phase II CMS/FS Report	June 9, 1997
OU 4 SOLAR PONDS PHASE II CORRECTIVE AND REMEDIAL ACTION PROPOSED PLAN (PP)	
Submit Draft Phase II PP	June 9, 1997
Submit Final Phase II PP	September 5, 1997
Submit Phase II Responsiveness Summary	January 16, 1998
Submit Final Phase II Responsiveness Summary	April 14, 1998
OU 4 SOLAR PONDS PHASE II CORRECTIVE ACTION DECISION/ FINAL ACTION DECISION (CAD/FAD)	
Submit Draft Phase II CAD/FAD	April 14, 1998
Submit Final Phase II CAD/FAD	July 14, 1998
OU 4 SOLAR PONDS PHASE II CORRECTIVE/REMEDIAL DESIGN (CD/RD)	
Submit CD/RD Work Plan	July 14, 1998
Submit Draft Title II Design	March 15, 1999
Submit Final Title II Design	June 14, 1999
OU 4 SOLAR PONDS PHASE II CORRECTIVE/REMEDIAL ACTION (CA/RA)	
Begin CA/RA Construction	January 18, 2000

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 5
WOMAN CREEK

OU 5 PHASE I RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	April 5, 1991
Submit Final Phase I RFI/RI Work Plan	August 30, 1991
Submit Draft Phase I RFI/RI Report	November 30, 1993
Submit Final Phase I RFI/RI Report	May 3, 1994

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 6
WALNUT CREEK

OU 6 PHASE I RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	April 19, 1991
Submit Final Phase I RFI/RI Work Plan	September 16, 1991
Submit Draft Phase I RFI/RI Report	August 4, 1993
Submit Final Phase I RFI/RI Report	January 7, 1994

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 7
PRESENT LANDFILL

OU 7 PRESENT LANDFILL PHASE I RFI/RI	
Submit Draft Phase I RFI/RI Work Plan	June 8, 1990
Submit Final Phase I RFI/RI Work Plan	August 28, 1991
Submit Draft Phase I RFI/RI Report	October 12, 1993
Submit Final Phase I RFI/RI Report	March 16, 1994
OU 7 PRESENT LANDFILL PHASE I IM/IRA	
Submit Draft Phase I Proposed IM/IRA Decision Document	November 1, 1994
Submit Final Phase I Proposed IM/IRA Decision Document	April 6, 1995
Submit IM/IRA Responsiveness Summary	August 14, 1995
Submit Final Phase I IM/IRA Decision Document and Responsiveness Summary	November 9, 1995
Submit IM/Design Work Plan	December 13, 1995
Submit Phase I IM/IRA Implementation Document	August 13, 1996
Submit IM Title II Design	December 12, 1996
Begin Phase I IM/IRA Construction	July 17, 1997
OU 7 PRESENT LANDFILL PHASE II RFI/RI	
Submit Draft Phase II RFI/RI Work Plan	September 13, 1994
Submit Final Phase II RFI/RI Work Plan	February 15, 1995
Submit Draft Phase II RFI/RI Report	September 9, 1996
Submit Final Phase II RFI/RI Report	February 11, 1997

OU 7 PRESENT LANDFILL PHASE II CMS/FS	
Submit Draft Phase II CMS/FS Report	May 9, 1997
Submit Final Phase II CMS/FS Report	November 4, 1997
OU 7 PRESENT LANDFILL PHASE II CORRECTIVE AND REMEDIAL ACTION PP	
Submit Draft Phase II PP	November 4, 1997
Submit Final Phase II PP	February 10, 1998
Submit Phase II Responsiveness Summary	June 15, 1998
Submit Final Phase II Responsiveness Summary	September 10, 1998
OU 7 PRESENT LANDFILL PHASE II CAD/FAD	
Submit Draft Phase II CAD/FAD	September 10, 1998
Submit Final Phase II CAD/FAD	December 10, 1998
OU 7 PRESENT LANDFILL PHASE II CD/RD	
Submit CD/RD Work Plan	December 10, 1998
Submit Draft Title II Design	August 11, 1999
Submit Final Title II Design	November 9, 1999
OU 7 PRESENT LANDFILL PHASE II CA/RA	
Begin CA/RA Construction	June 14, 2000

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 8
700 AREA

OU 8 700 AREA PHASE I RCRA FACILITY INVESTIGATION/
REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	May 1, 1992
Submit Final Phase I RFI/RI Work Plan	September 28, 1992
Submit Draft Phase I RFI/RI Report	February 14, 1994
Submit Final Phase I RFI/RI Report	July 12, 1994

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 9
ORIGINAL PROCESS WASTE LINES

OU 9 ORIGINAL PROCESS WASTE LINES PHASE I RFI/RI	
Submit Draft Phase I RFI/RI Work Plan	June 8, 1990
Submit Final Phase I RFI/RI Work Plan	November 26, 1991
Submit Draft Phase I RFI/RI Report	April 11, 1994
Submit Final Phase I RFI/RI Report	September 6, 1994
OU 9 ORIGINAL PROCESS WASTE LINES PHASE I IM/IRA	
Submit Draft Phase I Proposed IM/IRA Decision Document	May 1, 1995
Submit Final Phase I Proposed IM/IRA Decision Document	September 27, 1995
Submit IM/IRA Responsiveness Summary	February 8, 1996
Submit Final Phase I IM/IRA Decision Document and Responsiveness Summary	May 7, 1996
Submit CD/RD Work Plan	June 7, 1996
Submit Phase I IM/IRA Implementation Document	February 7, 1997
Submit IM Title II Design	June 9, 1997
Begin Phase I IM/IRA Construction	January 13, 1998
OU ORIGINAL PROCESS WASTE LINES PHASE II RFI/RI	
Submit Draft Phase II RFI/RI Work Plan	March 10, 1995
Submit Final Phase II RFI/RI Work Plan	August 7, 1995
Submit Draft Phase II RFI/RI Report	July 9, 1997
Submit Final Phase II RFI/RI Report	December 4, 1997

OU 9 ORIGINAL PROCESS WASTE LINES PHASE II CMS/FS	
Submit Draft Phase II CMS/FS Report	March 10, 1998
Submit Final Phase II CMS/FS Report	September 3, 1998
OU 9 ORIGINAL PROCESS WASTE LINES PHASE II CORRECTIVE AND REMEDIAL ACTION PP	
Submit Draft Phase II PP	September 3, 1998
Submit Final Phase II PP	October 5, 1998
Submit Draft Phase II Responsiveness Summary	March 10, 1999
Submit Final Phase II Responsiveness Summary	June 7, 1999
OU 9 ORIGINAL PROCESS WASTE LINES PHASE II CAD/FAD	
Submit Draft Phase II CAD/FAD	June 7, 1999
Submit Final Phase II CAD/FAD	September 3, 1999
OU 9 ORIGINAL PROCESS WASTE LINES PHASE II CD/RD	
Submit CD/RD Work Plan	September 3, 1999
Submit Draft Title II Design Plans	May 5, 2000
Submit Final Title II Design Plans	August 4, 2000
OU 9 ORIGINAL PROCESS WASTE LINES PHASE II CA/RA	
Begin CA/RA Construction	March 9, 2001

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 10
OTHER OUTSIDE CLOSURES

OU 10 OTHER OUTSIDE CLOSURES PHASE I RFI/RI	
Submit Draft Phase I RFI/RI Work Plan	November 27, 1991
Submit Final Phase I RFI/RI Work Plan	May 1, 1992
Submit Draft Phase I RFI/RI Report	August 25, 1994
Submit Final Phase I RFI/RI Report	January 30, 1995
OU 10 OTHER OUTSIDE CLOSURES PHASE I IM/IRA	
Submit Draft Phase I Proposed IM/IRA Decision Document	May 26, 1995
Submit Final Phase I Proposed IM/IRA Decision Document	October 24, 1995
Submit IM/IRA Responsiveness Summary	March 6, 1996
Submit Final Phase I IM/IRA Decision Document and Responsiveness Summary	June 4, 1996
Submit CD/RD Work Plan	July 5, 1996
Submit Phase I IM/IRA Implementation Document	March 6, 1997
Submit IM Title II Design	July 7, 1997
Begin Phase I IM/IRA Construction	February 9, 1998
OU 10 OTHER OUTSIDE CLOSURES PHASE II RFI/RI	
Submit Draft Phase II RFI/RI Work Plan	June 27, 1995
Submit Final Phase II RFI/RI Work Plan	November 21, 1995
Submit Draft Phase II RFI/RI Report	October 23, 1997
Submit Final Phase II RFI/RI Report	March 30, 1998

OU 10 OTHER OUTSIDE CLOSURES PHASE II CMS/FS	
Submit Draft Phase II CMS/FS Report	June 25, 1998
Submit Final Phase II CMS/FS Report	December 22, 1998
OU 10 OTHER OUTSIDE CLOSURES PHASE II CORRECTIVE AND REMEDIAL ACTION PP	
Submit Draft Phase II PP	December 22, 1998
Submit Final Phase II PP	March 30, 1999
Submit Draft Phase II Responsiveness Summary	August 3, 1999
Submit Final Phase II Responsiveness Summary	October 28, 1999
OU 10 OTHER OUTSIDE CLOSURES PHASE II CAD/FAD	
Submit Draft Phase II CAD/FAD	October 28, 1999
Submit Final Phase II CAD/FAD	February 4, 2000
OU 10 OTHER OUTSIDE CLOSURES PHASE II CD/RD	
Submit CD/RD Work Plan	February 4, 2000
Submit Draft Title II Design Plans	September 28, 2000
Submit Final Title II Design Plans	January 5, 2001
OU 10 OTHER OUTSIDE CLOSURES PHASE II CA/RA	
Begin CA/RA Construction	August 2, 2001

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 11
WEST SPRAY FIELD

OU 11 WEST SPRAY FIELD PHASE I RFI/RI	
Submit Draft Phase I RFI/RI Work Plan	June 8, 1990
Submit Final Phase I RFI/RI Work Plan	January 2, 1992
Submit Draft Phase I RFI/RI Report	September 20, 1994
Submit Final Phase I RFI/RI Report	February 22, 1995
OU 11 WEST SPRAY FIELD PHASE I IM/IRA	
Submit Draft Phase I Proposed IM/IRA Decision Document	October 10, 1995
Submit Final Phase I Proposed IM/IRA Decision Document	March 14, 1996
Submit Phase I IM/IRA Responsiveness Summary	July 22, 1996
Submit Phase I Final IM/IRA Decision Document and Final Responsiveness Summary	October 17, 1996
Submit IM Design CD/RD Work Plan	November 18, 1996
Submit Phase I IM/IRA Implementation Document	July 22, 1997
Submit IM Title II Design	November 18, 1997
Begin Phase I IM/IRA Construction	June 24, 1998
OU 11 WEST SPRAY FIELD PHASE II RFI/RI	
Submit Draft Phase II RFI/RI Work Plan	August 21, 1995
Submit Final Phase II RFI/RI Work Plan	January 24, 1996
Submit Draft Phase II RFI/RI Report	August 13, 1997
Submit Final Phase II RFI/RI Report	January 16, 1998

OU WEST SPRAY FIELD PHASE II CMS/FS	
Submit Draft Phase II CMS/FS Report	April 15, 1998
Submit Final Phase II CMS/FS Report	October 9, 1998
OU 11 WEST SPRAY FIELD PHASE II CORRECTIVE AND FINAL ACTION PP	
Submit Draft Phase II PP	October 9, 1998
Submit Final Phase II PP	January 21, 1999
Submit Phase II Responsiveness Summary	May 25, 1999
Submit Final Phase II Responsiveness Summary	August 20, 1999
OU 11 WEST SPRAY FIELD PHASE II CAD/FAD	
Submit Draft Phase II CAD/FAD	August 20, 1999
Submit Final Phase II CAD/FAD	November 18, 1999
OU 11 WEST SPRAY FIELD PHASE II CD/RD DESIGN	
Submit CD/RD Work Plan	November 18, 1999
Submit Draft Title II Design Plans	July 21, 2000
Submit Final Title II Design Plans	October 19, 2000
OU 11 WEST SPRAY FIELD PHASE II CA/FA	
Begin Phase II CA/RA Construction	May 24,2001

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 12
400/800 AREA

OU 12 400/800 AREA PHASE I RCRA FACILITY INVESTIGATION/
REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	May 8, 1992
Submit Final Phase I RFI/RI Work Plan	October 5, 1992
Submit Draft Phase I RFI/RI Report	April 20, 1994
Submit Final Phase I RFI/RI Report	September 15, 1994

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 13
100 AREA

OU 13 100 AREA PHASE I RCRA FACILITY INVESTIGATION/
REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	May 15, 1992
Submit Final Phase I RFI/RI Work Plan	October 12, 1992
Submit Draft Phase I RFI/RI Report	August 8, 1994
Submit Final Phase I RFI/RI Report	January 11, 1995

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 14
RADIOACTIVE SITES

OU 14 RADIOACTIVE SITES PHASE I RCRA FACILITY INVESTIGATION/ REMEDIAL INVESTIGATION (RFI/RI)

Submit Draft Phase I RFI/RI Work Plan	May 22, 1992
Submit Final Phase I RFI/RI Work Plan	October 19, 1992
Submit Draft Phase I RFI/RI Report	December 20, 1994
Submit Final Phase I RFI/RI Report	May 23, 1995

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 15
INSIDE BUILDING CLOSURES

OU 15 PHASE I RCRA FACILITY INVESTIGATION/ REMEDIAL INVESTIGATION (RFI/RI)	
Submit Draft Phase I RFI/RI Work Plan	June 1, 1992
Submit Final Phase I RFI/RI Work Plan	October 26, 1992
Submit Draft Phase I RFI/RI Report	August 1, 1994
Submit Final Phase I RFI/RI Report	January 4, 1995

TABLE 6
FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE SCHEDULE

OU 16
LOW-PRIORITY SITES

OU 16 NO FURTHER ACTION JUSTIFICATION

Submit Draft No Further Action Justification Document	March 4, 1992
Submit Final No Further Action Justification Document	July 30, 1992

ATTACHMENT 4 - HAZARDOUS SUBSTANCE LIST

The materials listed below have been released at the Facility, or pose a threat of release to the environment at the Facility. This list is based on information gathered prior to the effective date of this Agreement and is subject to change dependent on the information gathered after the effective date of this Agreement.

Radionuclides:

- Plutonium 239, 240
- Americium 241
- Uranium 233, 234, 235, and 238
- Tritium
- Gross alpha
- Gross beta

Metals:

- Aluminum
- Beryllium
- Calcium
- Cadmium
- Cobalt
- Chromium
- Barium
- Lead
- Magnesium
- Selenium
- Sodium
- Silver
- Strontium
- Thallium
- Zinc
- Mercury
- Nickel
- Lithium

Inorganics:

- Sulfuric Acid
- Nitric Acid
- Hydrofluoric Acid
- Sodium Hydroxide
- Hydrochloric Acid
- Nitrate
- Sulfate
- Hydroxide

Volatile Organics:

1,1,2-Trichloroethylene
Chloroform
1,1,1-Trichloroethane
Carbon Tetrachloride
1,2-Dichloroethane
Acetone
Perchloroethane
Benzene
Toluene
Methylethyl Ketone Peroxide
Dichloromethane
Xylene
2-Butanone
Methylene Chloride
Methyl Ethyl Ketone

Semi-Volatile Organics:

bis(2-ethylhexyl)phthalate
ethylene glycol

Miscellaneous:

Diesel Fuel
Fuel Oil
Peroxide
Asbestos
Oil Sludge
Polyester Resin
Still Bottom Sands

RF 5906-MB-111989

N743,000 N743,000 N744,000 N745,000 N746,000 N747,000 N748,000 N749,000 N750,000 N751,000 N752,000 N753,000 N754,000 N755,000 N756,000 N757,000 N758,000

E2,074,000 E2,075,000 E2,076,000 E2,077,000 E2,078,000 E2,079,000 E2,080,000 E2,081,000 E2,082,000 E2,083,000 E2,084,000 E2,085,000 E2,086,000 E2,087,000 E2,088,000 E2,089,000 E2,090,000 E2,091,000 E2,092,000 E2,093,000 E2,094,000

SCALE: 1" = 500'

0 500' 1000'

CONTOUR INTERVAL = 20'

121 ORIGINAL PROCESS WASTE LINE

142.1 SOLID WASTE MANAGEMENT UNITS

SKIMMING POND

POND A-1 POND A-2 POND A-3 POND A-4 POND A-5 POND B-1 POND B-2 POND B-3 POND B-4 POND B-5 POND C-1 POND C-2

142.1 142.2 142.3 142.4 142.5 142.6 142.7 142.8 142.9 142.10 142.11 142.12

114 115 116.1 116.2 117.1 117.2 117.3 118.1 118.2 119.1 120.1 120.2 121 122 124.1 TO 124.3, 125 126.1* 126.2 127 128+134 129 130 131 132 133.1 133.2 133.3 133.4 133.5 133.6 135 136.1 136.2 136.3 137 138 139.1 139.2 140 141 142 143 144 145 146.1 TO 146.6 147.1 147.2 148 149 150.1 150.2 150.3 150.4 150.5 150.6 150.7/185 150.8 151 153 154 155 156.1 156.2 157.1 157.2 158 159 160 161 162 163.1 163.2 164.1 164.2 164.3 164.4 165 166.1 166.2 166.3 167.1 167.2 167.3 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 186 187 188 189 190 191 192 193 194 196 197 101 102 103 104 105.1* 105.2 106 107 108 109 110 111.1 111.2 111.3 111.4 111.5 111.6 111.7 111.8 112 113 203 204 205 206 207 208 209 210 211 212 213 214 215 216.1 216.2 216.3 217

U.S. DEPARTMENT OF ENERGY

ROCKWELL INTERNATIONAL
Rocky Flats Plant
Golden, Colorado

LOCATION OF SOLID WASTE MANAGEMENT UNITS

NOVEMBER 17, 1989

NO.	DATE	REVISION

A-SW-00546