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RF/RMRS-98-276

**ROCKY FLATS
BUILDING 788 CLUSTER
RCRA CLOSURE PROJECT**

PROJECT EXECUTION PLAN

REVISION 0

March 1999

Classification: K. A. [Signature]
Reviewed By: 3/8/99 [Signature]

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FOR THE BUILDING 788 CLUSTER RCRA CLOSURE PROJECT

March, 1999

PERFORMING ORGANIZATION CONCURRENCE SHEET

The undersigned have reviewed the cost, schedule and scope commitments established by this Project Execution Plan and agree to meet these commitments by the assignment of resources and applying an appropriate level of management attention to project execution:



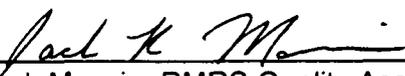
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1. PROJECT IDENTIFICATION

The Building 788 Cluster RCRA Closure project supports the Department of Energy (DOE) Strategic Plan by providing risk reduction to the public and the environment, along with a reduction in operating costs. This project is a necessary component of the Focus 2006 plan. It provides for the RCRA Closure and dismantling of the 207A Clarifier, Building 788, Building 308A, the relocation of T788A, and the removal of general debris and equipment from the Solar Evaporation Pond (SEP) area. Planning for this project has been included in the Performance Measurement Baseline (PMB), which governs the interface of multiple projects and programs. This project is included as part of the Environmental Restoration program and is part of the overall Rocky Flats Closure Project¹.

1.1 Vision

The Vision of the Building 788 Cluster RCRA Closure project is to eliminate several aboveground structures to their slabs, and remove, package, and disposition wastes and equipment from the SEP area.

1.2 Purpose

The purpose of the Building 788 Cluster RCRA Closure project is to supplement site closure by performing RCRA Closure and dismantlement of facilities, and the general cleanup of the area in preparation for future environmental restoration activities. This project will comply with the Order on Consent 97-08-21-01 with the Colorado Department of Public Health and Environment (CDPHE), and will result in the closure of two Resource Conservation and Recovery Act (RCRA) Units and a reduction in landlord cost.

1.3 Mission

The mission of the Building 788 Cluster RCRA Closure project is to dismantle the SEPs Clarifier (tank 138) by June 30, 1999. This action will satisfy one of the requirements of Order on Consent 97-08-21-01 that has been agreed to by Kaiser-Hill (K-H). The dismantling of Building 788 and the general cleanup, removal and packaging of waste and equipment from the SEPs will supplement this action.

1.4 Background/History

The Clarifier Tank (T138) is associated with RCRA Interim Status Unit 48, the Pondcrete Solidification Process. It was constructed as part of the treatment process to convert pond sludge into pondcrete, which is a mixture of SEP sludge and Portland cement. The Clarifier Tank is located to the east of Building 788. It became operational in 1986, and was shutdown in 1989 with sludge remaining in approximately half of the tank. Recent operations have removed all sludge from the Clarifier Tank, which is now considered to be 'Clean Closed'. A fixative designed to stabilize any loose radioactive contamination may be applied to the inside of the Clarifier depending upon the radioactive survey results. Hardened Sludge and liquid potentially remain in ancillary equipment below the tank and piping in the vicinity. Equipment associated with Unit 48 include a pug mill, cement mixer, the 308A pumphouse, and ancillary pumps and piping.

Sludge from the SEPs was processed to produce a solid waste called pondcrete. Pond water and sludge were pumped into the clarifier tank. The solids were allowed to settle on the bottom while excess pond water was returned to the solar ponds. Sludge was then pumped from the clarifier to the pug mill or cement mixer where it was mixed with portland cement and poured into tri-wall or plywood boxes. Full boxes were moved to Building 788 and allowed to cure.

Building 788 is a permanent storage facility located between ponds 207A and 207C. It was built in 1984 to support pondcrete operations and provide a facility to temporarily store pondcrete. An addition to the original building was constructed on the north side in 1986. The building is RCRA Unit 21, and is permitted to store Low Level mixed (LLM) waste. A contamination control room is located in the northwest corner of the building that was used to repackage wastes and decontaminate material and equipment.

The SEPs are located in the northeast side of the Protected Area (PA), and include Ponds 207A, 207B North, 207B Center, 207B South, and 207C. These asphalt lined ponds were used to store and treat liquid process waste generated from the site's weapons production activities. Emplacement of process waste material into these ponds ceased in 1986 because of changes in waste treatment operations. In 1986, a RCRA Part B operating permit application was submitted to the Colorado Department of Health (CDH, now called CDPHE), reporting the SEPs as an interim status unit scheduled to be closed. The SEPs were identified as a Solid Waste Management Unit, which later became Individual Hazardous Substance Site (IHSS) 101 and was part of old Operable Unit 4 (OU4). The SEPs have undergone various closure actions since 1988, when the Ponds Closure Plan was submitted to CDH. Interim Measures / Interim Remedial Actions (IM/IRAs) were developed in 1993 and 1995 to address closure and remedial actions.

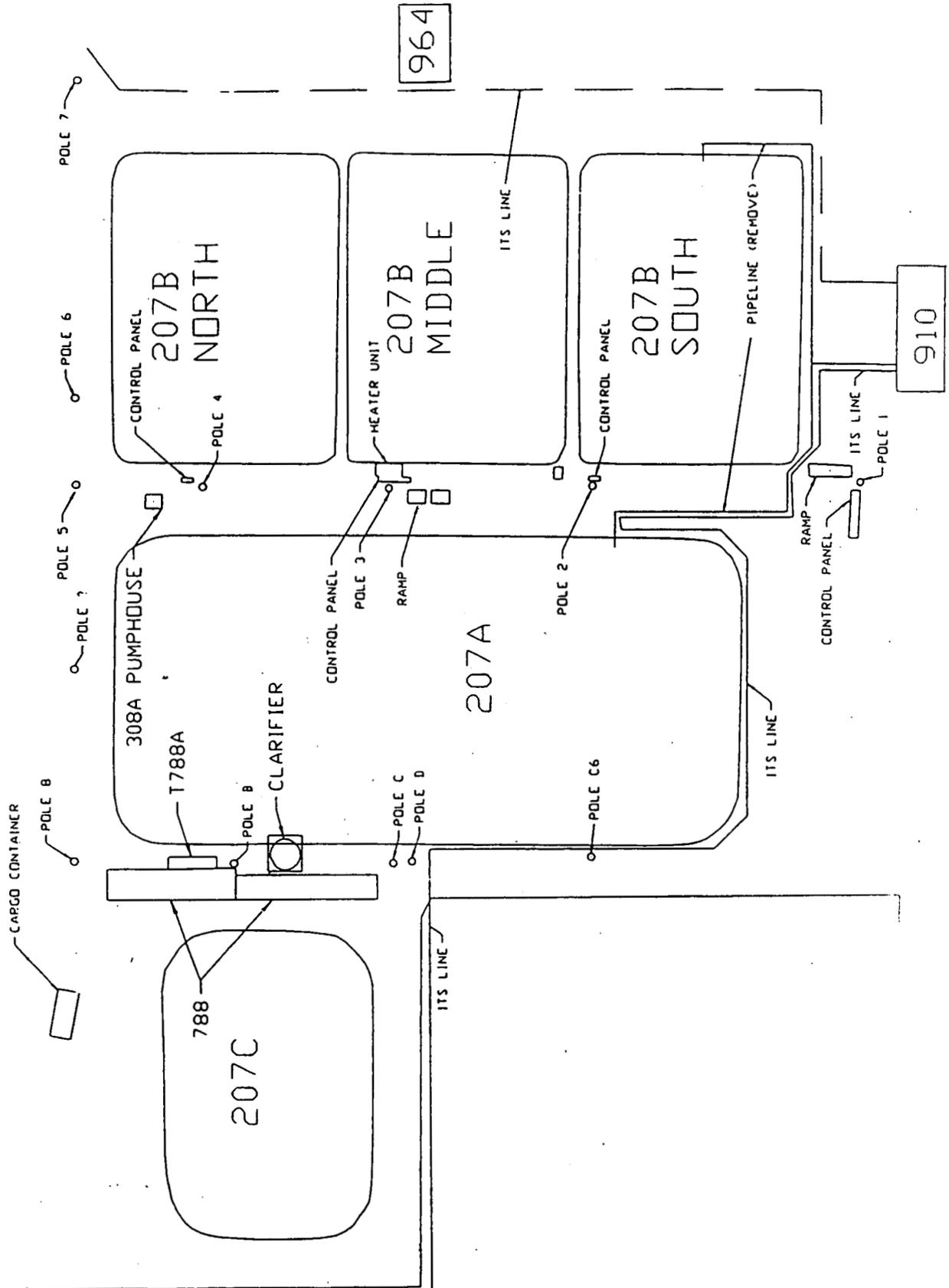
Pond 207A was placed into service in August 1956, and was used as the primary process waste liquid SEP. It replaced the original ponds that were lined with bentonite, which allowed nitrates to migrate into the ground water. It was completely cleaned of sludge and water in 1988, and again in 1992.

Ponds 207B North, 207B Center, and 207B South were placed into service in May 1960, and contained process wastes until 1977 when the ponds were cleaned and the linings replaced. Since 1977 these ponds have held treated sanitary effluent, treated water and backwash brine from the reverse osmosis facility, and ground water pumped back from the SEPs' Interceptor Trench System (ITS). These ponds were cleaned of sludge and water in 1994.

Pond 207C was completed in December 1970 to provide additional storage capacity and to allow the transfer of liquids from the other ponds in order to perform pond repair work. This pond was also cleaned of sludge and water in 1995.

The SEPs were formerly used to store and treat liquid process waste having less than 100,000 picoCuries per liter (pCi/l) of total long lived alpha activity. These process wastes also contained high concentrations of nitrates as well as treated acidic wastes containing aluminum hydroxide. The ponds are also known to have received other wastes, including sanitary sewer sludge, lithium chloride, lithium metal, sodium nitrate,

Figure 1: The Building 788 Cluster Decommissioning project results in the decommissioning and dismantling of building 788 and the Building 788A Clarifier, and the removal of general debris from the Solar Evaporation Pond (SEP) area.



ferric chloride, sulfuric acid, ammonium persulfates, hydrochloric acid, nitric acid, hexavalent chromium, tritium, and cyanide solutions.

Detailed characterizations of the pond wastes were performed during 1986, 1987, 1988, and 1991. Leakage from the ponds contributed to the contamination of soil and ground water with nitrates, heavy metals, and radioactive materials. A summary of the radiological history of the 207 Cluster is contained in Attachment 3. A complete listing of analytical data from IHSS 101 is available in the 1995 OU4 IM/IRA². Appendix A of the IM/IRA summarizes liquid and sludge from the SEPs, Appendix M summarizes subgrade sampling, Appendix O summarizes surface soil, and appendix Z summarizes contaminants of concern. IHSS 101 currently has the site environmental restoration ranking of 17.

The original ITS or French Drain System was completed on the hillside north of the SEPs in April 1974 to prevent natural seepage and pond leakage from entering North Walnut Creek. That system was replaced in April 1981 by the current ITS, which collects underground water at depths between 1 to 27 feet below surface grade. The water collected in the ITS flows by gravity to a pump house where it is pumped into the Modular Storage Tanks (MST). ITS water is currently pumped through transfer lines via buildings 910 and 774 to building 374 for treatment. The power feeds for this system come out of Building 910 and run through the SEP area.

1.5 Project Justification

Because of the change in direction at Rocky Flats Environmental Technical Site (RFETS), the mission of the SEPs no longer exists. In 1997, the DOE, K-H, and CDPHE entered into an Order on Consent (97-08-21-01) which required the implementation of the 1997 Tank Management Plan³. Appendix 1 of the plan requires that the Clarifier tank system be in RCRA stable condition by March 31, 1998. This schedule was subsequently modified to require RCRA stable condition by August 25, 1998, with the added commitment to dismantle the tank by June 30, 1999. "Dismantling" the tank means to take it and the building surrounding it apart, cut up the tank, package the resultant waste, and store the waste appropriately. Closure and Dismantlement of RCRA Unit 21 (Building 788) along with RCRA Unit 48 (Clarifier) will provide economy of scale and maximization of planning efforts.

1.6 Project Funding

Funding for the Building 788 Cluster RCRA Closure Project has been provided in the amount of \$3.10 million. The project will be funded in Fiscal Year (FY) 1999 as an Environmental Waste (EW) 05 project, Project Baseline Summary (PBS) 15, Work Authorization Document (WAD) 077, and Work Breakdown Structure (WBS) 1.1.06.01.04. Baseline Change Proposal (BCP) # 98-1806 was approved August 24, 1998 to allow for planning and characterization work to begin in FY 1998. See Appendix B for the PBS for Building 788 Cluster RCRA Closure.

2. PROJECT SCOPE

The Building 788 Cluster is part of the 207 Cluster located in the Northeast Quadrant of the PA. The 788 Cluster includes Building 788, Trailer 788A, Clarifier tank, Solar Ponds (207A, B, and C), and miscellaneous structures and equipment in the vicinity. Included in this project is the general cleanup and waste packaging around the Solar Ponds, and the RCRA Closure of Building 788, Building 308A, Clarifier tank, and ancillary treatment equipment.

This project is driven by an agreement with CDPHE to dismantle the Clarifier tank by June 30, 1999. There are two phases to this project: 1) debris removal and dismantlement and 2) RCRA closure. Remediation of IHSS 101 is not included in this scope, and a monitoring plan will not be required at the completion of the project. Following the building removal and closure actions, the associated foundations and area will be turned over to Environmental Restoration (ER) by a Memorandum of Understanding (MOU) for any future actions / efforts.

Transfer of Building 788 Cluster from RMRS Solid Waste Operations to "the project" will be in accordance with a MOU that will be signed when building transition is required (included as Attachment 1). Solid Waste Operations (SWO) will be responsible for the removal of all hazardous material in Building 788 prior to turn over to the project. The project will then assume responsibilities for building management. All RCRA inspections will remain the responsibility of SWO.

The major components of work included are as follows:

- Decommission Building B788.
- Decommission the Clarifier tank and surrounding wood structure (Tank #138).
- Decommission the 308A pump house.
- Relocate T788A a short distance from Building 788 to support field activities, and following project completion, moved to another location in the PA to serve a similar purpose on other projects.
- Remove and package excess equipment and debris from in and around Solar Ponds 207A, 207B (north, middle, and south), and 207C, including miscellaneous electrical control stations, pumps, hoses, piping, access ramps and platforms.
- Remove equipment from the exterior of Building 788 including, but not limited to the cement mixer, pug mill, concrete ramp, temporary loading facility, propane tank (Tank #139), and associated utilities.
- Remove electric power poles and lines to Building 788, and provide an alternate feed for the lights west of Pond 207C.
- Remove electrical power poles and lines between Ponds 207A and B, and provide an alternate feed for the MST's.

- Close RCRA Permitted Storage Unit 21 (Building 788) and Interim Status Treatment Unit 48 (Clarifier, Building 308A, pug mill, cement mixer, and other ancillary equipment associated with pond water and sludge processing).
- Modify the ITS pipeline to isolate Building 910. Due to possible changes in the future regulatory need for the ITS pipeline, this item will be handled as a separate bid item for the Subcontractor.

2.1 Goals

Project specific goals include:

1. Achieve zero lost man hours / zero reportable injuries working on the project.
2. Closure of RCRA Permitted Storage Unit 21, and Interim Status Treatment Unit 48.
3. Dismantlement and disposal of Clarifier (tank 138), Buildings 788 and 308A, and relocate Trailer 788A.
4. Prepare the site for further environmental restoration activities for future work.
5. Achievement of Substantial Completion/Beneficial Occupancy by June 30, 1999.

2.2 Deliverables

The primary project deliverables are:

1. Project Execution Plan (PEP)
2. CDPHE approved Closure Description Document (CDD) dictating closure requirements for RCRA Units 21 and 48, including all ancillary equipment.
3. Cluster Site Hazardous Assessment Report (SHAR).
4. Engineering Order, Integrated Work Control Package, Demolition Plan, Waste Management Plan, and Health and Safety Plan.
5. Building RCRA Closure and dismantlement by a construction subcontractor to meet the requirements of the Design Package. The subcontractor will be responsible for any asbestos and/or lead abatement work.

2.3 Boundaries

The project team has been assigned by RMRS Management who have been tasked by Kaiser-Hill. Team and Team Leader Authorities and Responsibilities are listed in Appendix A. DOE, through K-H, is funding the project. The baseline scope, schedule, and budget are approved by DOE, K-H, and RMRS. The project team will remain within the boundaries set forth in the baseline. Any changes to the baseline will be approved by Site Change Control Board (SCCB) prior to implementation.

2.4 Project Documents

Funding authorization has been received at the sixth level of the site WBS (WBS # 1.1.06.01.04.06). WAD 077 contains the scope and budget for this WBS element, and defines the basis for DOE contracted authorization to perform work. WAD 077 includes

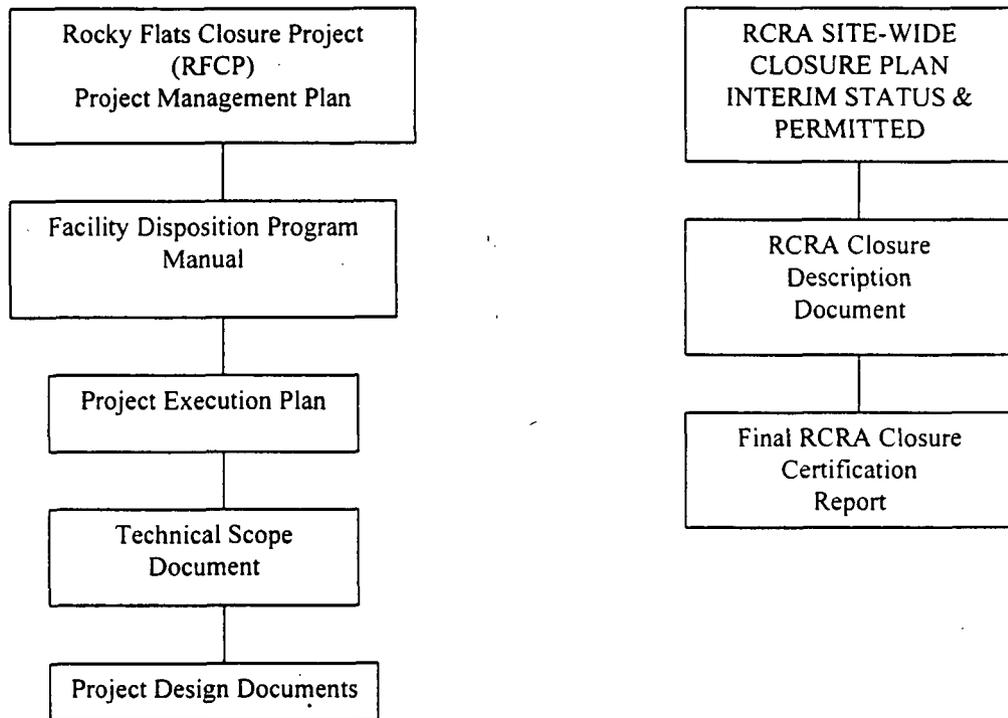
the 207 Cluster and the 964 Cluster, as part of Project Baseline Document (PBD) 15 (Miscellaneous Industrial Zone Closure).

Project documents include the Closure Description Document (Attachment 5), Site Hazardous Assessment Plan, Radiological Historical Assessment (Attachment 3), Technical Scope Document (Attachment 2), Risk Management Plan, and Waste Management Plan (WMP)(Attachment 4). These documents define the characterization of the hazards involved in the project and the approach to be taken in managing them.

Other project documents include, but are not limited to, Integrated Work Control Package (IWCP), Demolition Plan, Health and Safety Plan (HASP), Quality Assurance and Quality Control Plan QA/QC).

Figure 2 illustrates the document hierarchy for the project.

FIGURE 2 DOCUMENT HEIRARCHY



3. TECHNICAL APPROACH

The Building 788 Cluster has been determined to contain some radiological contamination and hazardous substance contamination. The Building 788 Cluster RCRA Closure project is being performed as a RCRA Closure activity and not under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) as a Rocky Flats Cleanup Agreement (RFCA) action. The approved Closure Decision Document (CDD) is the regulatory decision document that details the closure of RCRA Units 21 and 48, which includes the Building 788 Cluster.

The technical approach taken for the Building 788 Cluster RCRA Closure project started with project team members performing walk downs of the facility. Characterization campaigns were then conducted to determine the hazards associated with the project scope. This included radiological scoping surveys, RCRA chemical hazardous analysis, asbestos and lead paint analysis. Characterization data will be incorporated into the Site Hazard Assessment Report. Data Quality Objectives have been planned and implemented into all characterization plans.

Technology assessments were then made to determine the project method of accomplishment. A RCRA Closure Description Document was written as a method to close RCRA Units 21 and 48. Four options were outlined in the CDD and any combination of these will ensure regulatory compliance for the project. These options include decontamination, management of debris as hazardous waste, debris treatment, and disposing as scrap metal for recycle.

Final scoping surveys will be performed when all hazardous material associated with Permitted Unit 21 is removed from Building 788. It is anticipated that contamination will be found on the outside of the building and in locations currently posted as contaminated areas around the Clarifier tank and west bank of Pond 207A at Treatment Unit 48. This condition will likely implement radiological controls for the majority of RCRA Closure activities.

The Clarifier (tank 138) will be decommissioned first to meet the CDPHE compliance agreement. However, other activities will need to be completed to provide access for the RCRA Closure and allow disconnection of utilities. Attachment 2 contains the Technical Scope of the project, and defines individual tasks that will complete the Building 788 Cluster RCRA Closure.

3.1 Technical Strategy

The overall project strategy is to:

- Perform a Hazard Assessment of the Cluster
- RMRS will provide the Closure Description Document
- Competitively bid the construction contract to one of the Architectural Engineering/Construction/Construction Management (AECCM) contractors
- RMRS/K-H will provide contractor oversight and project management, Quality Assurance (QA), Safety, Construction Management, Compliance, and Waste Management

The technical strategy for the Building 788 Cluster RCRA Closure project is to:

- Identify the hazards
- Remove highest hazards first
- Focus on results that reduce 'mortgage costs' as soon as possible
- Apply appropriate technology to keep exposure and contamination As Low As Reasonably Achievable (ALARA)
- Decontaminate progressively through a building as required

3.2 Applicable Regulatory Requirements Documentation

The Kaiser-Hill contract with DOE specifies the list of DOE directives applicable to work at Rocky Flats. The K-H level 1 control documents conform to these requirements. All work on this Rocky Flats Closure Project is performed to appropriate regulations and standards that help protect the health and safety of the workers, environment, and surrounding populations. Section 7.1 provides more detail on this topic.

3.3 Guiding Principles

Guiding principles for the Building 788 Cluster RCRA Closure Project include:

- Safety of workers and the public as a primary concern.
- Protection of the environment.
- Efficient use of taxpayer's money.

3.4 Project Closure

When construction is substantially complete, a Beneficial Occupancy Notice will be signed with a punch list noting items requiring satisfactory resolution. After completion of the punch list items, a Project Acceptance and Transfer (PA&T) will be signed to signify subcontract completion. RMRS is responsible for disposition of all project records. This includes interface with Document Control and maintenance of the Administrative Record. The IWCP package(s) will be signed off and closed out. All open subcontracts will be closed and a release of claims received from the various subcontractors. The State will be notified of closure and completion of the project, and as a final step, the Final Project Close Out (FPCO) document will be signed and filed.

4. PERFORMANCE CRITERIA

Project team success depends on several Critical Success Factors. Performance to the project work plan completes the project mission. Performance criteria for the project include:

- Safety,
- Technical performance requirements from specifications and applicable requirements
- Quality,
- Schedule,
- Costs,
- Administrative (e.g., subcontracting).

This project commits to achieve annual and long term milestones and performance metrics. These include a Site Performance Measure and Consent Order Milestone. Kaiser- Hill updates the Performance Measurements annually. Milestone completion reports are submitted as the milestones are achieved.

4.1 Critical Success Factors

Critical success factors for the Building 788 Cluster RCRA Closure project are:

- Conduct operation safely.
- Meet the requirements of Order on Consent 97-08-21-01 by June 30, 1999.
- Maintain complete and accurate project documentation.
- Coordinate all necessary site resources.
- Apply and share Lessons Learned.

4.2 Measures

Project measures include:

- | | |
|---|-------------------|
| • CDD transmitted to DOE | January 4, 1999 |
| • PEP (Rev. 0) | March 9, 1999 |
| • B788 & Clarifier dismantled | June 30, 1999 |
| • B308A, T788A, and remove
all ancillary equipment | September 1, 1999 |

4.3 Consent Order Milestone

Consent Order milestone supported by this plan is (97-08-21-01)

- The Solar Ponds Clarifier Tank. A revision to the 1997 Tank Management Plan set forth in a letter from K-H to CDPHE dated April 3, 1998 adds a new commitment to dismantle the tank by June 30, 1999. "Dismantling" the tank means to take it and the building surrounding it apart, cut up the tank, package the resultant waste, and store the waste appropriately.

4.4 Performance Measure

Kaiser-Hill and DOE have a performance based contract. The total fee that DOE pays Kaiser-Hill (and its subcontractors) is subject to the government weighted fee guidelines. This means that our project team earns more by higher performance. DOE requires unambiguous measures of performance in order to pay on this basis. Performance measure milestones supported by this project include:

99/00-07.3R Northeast Quadrant Decommissioning and Demolition

- Dismantle the 207A Clarifier (tank 138) and surrounding plywood structure by June 30, 1999
- Demolish Buildings B788, B788A, and T788A by September 30, 1999

- Demolish B308A and all ancillary treatment equipment, and remove all excess by September 30, 1999

5. PROJECT RISK MANAGEMENT

5.1 Assumptions

Key assumptions pertinent to planning and implementing the Building 788 Cluster RCRA Closure project are:

- The Solar Ponds Clarifier Tank will be RCRA stable by September 1998. The interior surface may require application of a fixative to control any residual contamination prior to demolition.
- Funding will be available in a timely manner to bid and award the construction subcontract.
- The construction subcontract will be awarded following a competitive bid process to one of the AECCM's.
- All Subcontract workers will be Rad Worker II trained, and all workers generating waste will be Waste Generator qualified / trained.
- Waste currently stored in RCRA Unit 21 will be removed from the facility.
- Glovebox J-40 will be shipped in its current state to another on-site facility.
- A Closure Description Document will be approved and utilized defining RCRA requirements.
- Hazards/contamination is limited to lead based paint, asbestos, identified SEP hazardous constituents, and radioactive contamination.
- Building 788 Cluster demolition and cleanup of the Solar Ponds miscellaneous equipment / materials will be conducted without protective enclosures.
- Some work will be performed in a Contaminated Area (CA), and appropriate Personnel Protective Equipment (PPE) will be required, per the Radiological Work Permit (RWP).
- Radioactive contaminated metal will be shipped to an approved vender for recycle.
- The fire protection system can be isolated with valves for depressurization.
- Radiological surveys will be managed by RMRS Radiological Operations.
- Escorts, if required, will be used to monitor uncleared workers and will be provided by the Subcontractor.
- Field activities will be performed during normal construction periods. Typical weather delays (wind, lightning, rain, snow, etc.) will be included in the Subcontractors plans.
- Waste will be packaged into wood or metal crates provided by the Contractor. Recycle metal will be packed into Sealands provided by the recycle facility..
- The cargo container at the north side of the 207C Pond is not the responsibility of this project.
- Portable toilet facilities will be the responsibility of the Subcontractor.
- Housing Urban Development (HUD) and General Services Administration (GSA) notifications will be made by the DOE's Realty Officer in the first quarter of FY99.

5.2 Risks

Project risk factors that might impact project completion in full scope, schedule, or cost were assessed by project management using the list of ten standard D&D project risk factors with regard to their probability of occurrence and their potential impact to the project's Schedule at Completion (SAC). The manifestation of this risk assessment is the quantification of the schedule impact (additional days) to the project's Base SAC that is associated with the selected risk factors. Risks that were identified by project management are listed in Table 1 below, along with preventive measures taken or mitigation measures planned. Attachment 6 is the Plan for Mitigation of Potential Problems that are identified by Table 1.

The Potential Problem Analysis Criteria utilized in Table 1 is as follows:

P – Risk Probability

S – Seriousness of the consequence to the Site critical path and total PMB cost.

H – greater than a 50% chance of occurring over the life of the project, and greater than a 20% impact of the overall Rocky Flats Closure Project schedule or cost.

M – 5% - 50% chance of occurring over the life of the project, and 5% - 20% chance of impacting the overall Rocky Flats Closure Project schedule or cost.

L – less than 5% chance of occurring over the life of the project, and less than 5% chance of impacting the overall Rocky Flats Closure Project schedule or cost.

Table 1: Potential Problem Analysis identifying major project risks for the Building 788 Cluster RCRA Closure project.

Potential Problem	P	S	Prevention	Mitigation
Encounter an unexpected hazardous material (i.e. asbestos, Polychlorinated biphenyls (PCB's), lead, other metals, unidentified chemicals, etc.	M	M	Perform detailed characterization of the facility for expected hazards prior to RCRA Closure. Provide explicit direction to Subcontractors on how the identified hazards should be managed and removed if encountered.	Develop a plan and allocate resources to have on stand-by for mitigation. The plan should identify all potential hazards, who should be contacted for assistance (i.e. Health and Safety Professionals, State Certified Asbestos Professionals, sample collection personnel, sample analysis organizations, etc.), responsibilities, a general plan of action, remediation tasks, and applicable RFETS procedures. Include mitigating work tasks in the IWCP as much as possible. Include the mitigation plan in the project work plan.
Encounter unexpected radiological contamination.	M	H	Perform detailed radiological characterization of the facility prior to RCRA Closure. Provide explicit direction to Subcontractors and RFETS support personnel on how the radiological contamination should be removed/managed. Personnel should be Rad. Worker II trained prior to start of the project.	Develop a plan and allocate resources to have on stand-by for mitigation. The plan should identify anticipated forms of contamination, who should be contacted for assistance (Radiological Engineering, Radiological Operations, Health and Safety Professionals, sample collection personnel, sample analysis organizations, etc.), responsibilities, a general plan of action, remediation tasks, and applicable RFETS procedures. Include mitigating work tasks in the IWCP as much as possible. Include the mitigation plan in the project work plan.
Encounter unexpected/concealed structures, systems, or components.	M	M	Conduct a thorough walk-down of the facility prior to RCRA Closure. Investigate areas that are concealed (i.e. above dropped ceilings, in vaults, crawl spaces etc.). Complete a thorough review of available as-built information for buried utilities and structures. Interview Utilities, Utility Engineering Support, and Operational Personnel.	Develop a plan and allocate resources to have on stand-by for mitigation. The plan should identify anticipated structures, systems or components (i.e. buried utilities, abandoned pipe, etc.), who should be contacted for assistance (Engineering, Health and Safety Professionals etc.), a general plan of action, and applicable RFETS procedures. Include mitigating work tasks in the IWCP as much as possible. Include the mitigation plan in the project work plan.
Closure Description Document is not approved by the State.	M	M	Work closely with the State to understand project expectations. Ensure the document incorporates all regulatory requirements, and RCRA Site-Wide Closure Plan - Interim Status and Permitted Units.	Promptly revise the document to incorporate comments. Review the proposed comment resolution with DOE and the State prior to transmitting revised documents to ensure that comments have been interpreted correctly.
Experience delays due to unusually severe weather.	M	H	Add contingency time to schedule to accommodate for potential weather delays.	Ensure there is clear subcontract language regarding weather delays and how cost and schedule impacts will be managed.
Accident or injury.	L	H	Implement Integrated Safety Management System (ISMS); emphasize safety awareness throughout the entire project, prepare activity hazard analyses, review safety requirement and potential hazards in a Plan of the Day meeting.	Follow all RFETS procedures for accidents and injuries. Hold lessons learned meetings with workers and project support personnel.

6. METHOD OF ACCOMPLISHMENT

This Project Execution Plan is a dynamic document that will change as the scope of the project develops. It details how the Building 788 Cluster RCRA Closure will be achieved. Kaiser-Hill will function as the Integrating Management Contractor (IMC) for the project. Project planning, hazard assessment, regulatory documents, contract monitoring, and closure reporting will be performed by the RMRS project team. Design will be performed by a team led by RMRS project engineering per procedures DES-210 and MAN-071-IWCP. The design will produce construction drawings and specifications. Based upon the activities to be performed the final Davis-Bacon determination states that this project is to be completed as "construction" work.

Removal activities will be subcontracted to a construction subcontractor using a fixed price contract. The construction subcontractor will be responsible for the removal and waste packaging of B788, 308A, 207 Clarifier, Pug Mill, and miscellaneous materials. Additionally, the subcontractor will be responsible for relocating T788A, a Type 1 facility, a short distance from Building 788, to be used as for field management activities. Following project completion, the trailer will be relocated within the Protected Area to serve a similar purpose on other projects.

The construction subcontractor shall be tasked to provide their own Quality Control (QC) and Safety personnel and shall work to the IWCP provided by RMRS. RMRS shall provide a Construction Superintendent, Radiation Control Personnel, waste brokers, QA and Safety oversight.

Review of hazard assessment information will be completed to identify/verify potential hazards within the work area so that the IWCP can be developed to ensure that individuals assigned to work within an area are properly trained and protected. The IWCP implements the Integrated Safety Management System (ISMS) and provides detailed guidance on how the five core elements of ISMS are to be integrated into work planning and execution.

IWCP ensures that work is screened consistently to uniform criteria and that hazards are appropriately analyzed and controlled. Specifically, IWCP:

- Describes the process to identify the nature of the work or activity.
- Prescribes the methods to identify hazards and define specific activity controls.
- Describes the process for identifying the proper level of planning (graded approach)
- Describes the process for establishing the appropriate work controls and documentation.
- Provides detailed description for developing operations and technical activity procedures.
- Describes processes and controls for work closeout.
- Provides a mechanism for feedback to ensure continuous improvement through the use of a Post Job Review Process, procedures reference library and lessons learned.

7. ENVIRONMENTAL, HEALTH, AND SAFETY

7.1 Environmental Compliance

RFETS management is fully committed to regulatory compliance and environmental cleanup and stewardship at RFETS. All activities identified in the scope of this project comply with the requirements of the following (non-inclusive) list:

- Federal Facility Compliance Agreement (FFCA)
- Order on Consent (Tank Management Plan)
- National Environmental Policy Act (NEPA)
- Occupational Safety and Health Act (OSHA)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Resource Conservation and Recovery Act (RCRA)
- Price Anderson
- Site Treatment Plan (STP)
- Colorado Regulation 8
- Toxic Substances Control Act (TSCA)
- National Pollution Discharge Elimination System (NPDES)
- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Safe Drinking Water Act (SWDA)
- McKinney Act
- Price-Anderson Amendments Act (PAAA)
- National Historic Preservation Act (NHPA)

Activities associated with the Building 788 RCRA Closure Project have been reviewed under the NEPA process. It has been determined that the environmental impact from the project activities will be insignificant. There is no requirement for an environmental assessment or an environmental impact statement. Compliance with other generic environmental law requirements has been assured by a Subject Matter Expert (SME) review of the project plan, and incorporated into the detailed project work plan.

7.2 Integrated Safety Management System

Kaiser-Hill will close the Site safely through rigorous identification, and control of project work hazards. The ISMS manual supports this objective and addresses five functions:

1. Define the Scope of Work
2. Identify and Analyze the Hazards
3. Identify and Implement Controls
4. Perform the Work
5. Provide Feedback

The Building 788 Cluster RCRA Closure Project working plans address all of these functions. In addition the project has identified the required training for workers to be building specific.

These requirements will be addressed in the building indoctrination. Training requirements for the subcontractor will be developed after all hazards are identified in the Site Hazard Analysis Report. Identified hazards will be addressed in the job specific Health and Safety Plan written by the Subcontractor.

Work scope detail definition and hazard identification requires team walk downs to characterize and identify worker hazards associated with specific project activities. (Activities include modifications, maintenance, material moves, environmental restorations, construction, decontamination, dismantlement, etc.). Walkdown teams include management, planners, workers, safety professionals and SMEs.

Kaiser-Hill implements the ISMS through K-H Requirements Manuals and subcontractor lower-level implementing procedures. The project team establishes requirements for individual activity hazards, providing necessary and sufficient controls. They shall identify project requirements using the Kaiser-Hill and/or subcontractor manuals and procedures. It is not necessary to re-address the source documents; i.e., DOE Orders, regulations, etc. The Integrated Work Control Process (IWCP) establishes controls to prevent and/or mitigate identified work hazards.

Work execution shall include appropriate graded readiness demonstration. Readiness demonstration ranges from pre-job briefings (for routine low hazard work) to Operational Readiness Reviews. K-H Safety Systems and Engineering have been consulted to establish the initial activity safety assessments and readiness demonstration scope.

Table 2 identifies the application of ISMS processes to the Building 788 Cluster RCRA Closure project based on current information as developed by the project management team. The project baseline plan incorporates these processes. This table will be revised if appropriate when presented with new information during work performance.

Table 2: Building 788 Cluster RCRA Closure project ISMS activity based work planning safety processes.

Activity type (scope of work)	Work Definition Process	Hazard Analysis Process	Control Process (Includes Readiness Demonstration)	Work Performance Process	Feedback Process
Routine Cleanup	Master Activity List (MAL)	Per MAL	Team hazard assessment, Plan of the day (POD), Pre-job briefing	1-G32-IWCP-5	1-MAN-013-SIOM & 1-MAN-071-IWCP
Contamination Zone Characterization	IWCP	SME review	Team hazard assessment, POD, Pre-job briefing	Conduct of Operations Manual (COOP)	1-MAN-013-SIOM & 1-MAN-071-IWCP
Contaminated Equipment Dismantlement	IWCP	"High Planning Level" Work Control Process	SAR/BIO/BFO review, Team hazard assessment, POD, Pre-job briefing	COOP	1-MAN-017-LL/GI-RM & 1-MAN-013-SIOM & 1-MAN-071-IWCP
Building Dismantlement Activities	IWCP	SME review	Team hazard assessment, POD, Pre-job briefing	COOP	1-MAN-013-SIOM & 1-MAN-071-IWCP

8. WASTE MANAGEMENT AND MINIMIZATION

A project specific Waste Management Plan has been developed for the Building 788 Cluster RCRA Closure project (see attachment 4). Closure and disposal of RCRA Units 21 and 48 will be in accordance with the approved CDD (see attachment 5), and will not be considered CERCLA waste. The characterization of project waste will comply with Colorado Hazardous Waste Regulations 6 CCR 1007-3 Part 261, and be based on the SHAR and process knowledge of the SEP operations. These waste streams will be managed in accordance with 6 CCR 1007-3 Parts 262, 264, 265, and 268. Waste characterization will be documented through the use of the D&D Waste Stream and Residue Identification and Characterization (WSRIC) book. The Subcontractor will be required to have waste generator trained/qualified personnel to handle waste packaging.

The Building 788 Cluster RCRA Closure project WMP defines the individual types and quantities of waste that will be generated. The WMP also defines the methods that will be used for proper packaging, handling and disposal. Radiological surveys/assessments will be required to make the determination of an item's radiological status. The Customer Service Organization (CSO) will prepare Waste Generator Instructions (WGIs) for all types of waste to be packaged for disposal. These WGIs combine the requirements of all applicable federal regulations and RFETS procedures.

Due to process knowledge and scoping surveys performed in the Building 788 Cluster, it is anticipated that almost all waste generated during this project will be disposed of as radioactively contaminated. A cost benefit analysis has been performed to document the examination of waste being radioactive or non-radioactive, and can be found in project files. Extensive surveys involving many man-hours would be required to allow a waste item to meet the free release criteria. Additionally, many waste items have inaccessible or porous surfaces that will not allow for proper surveys, and these will either be considered LLW or LLM. Metal waste items in the LLW category will be sent for recycle at a metal melt facility. All LLM waste will be managed in a 90-day storage area after it is packaged and before it is transported to a permitted storage unit onsite.

Waste minimization will be utilized to the maximum extent possible in the management of the Building 788 Cluster RCRA Closure waste. Elimination and reduction of waste generated as a result of RCRA Closure is a high priority. Standard decontamination operations and processes will be evaluated for waste minimization potential and suitable minimization techniques will be implemented. The minimization of LLM waste through decontamination will be accomplished through the RCRA closure activities, and utilization of procedure PRO-267-RSP-09.05, *Radiological Characterization For Surface Contaminated Object Shipment and Disposal*.

The RMRS Waste Operations organization will arrange interim storage of the wastes generated and for transportation to an appropriate off-site facility. In preparation for shipment, the waste will be packaged to meet Department of Transportation (DOT) requirements. Manifests will be developed by the project team in coordination with the RFETS Traffic Department. Disposal of waste will be in accordance with state and federal regulations at offsite waste receiving sites that are approved vendors.

9. STAKEHOLDERS

Stakeholder involvement in this project is mandated by Law and DOE policy. Stakeholders include regulators, the public, project workers (including subcontractors), and anyone affected by the project. The Rocky Flats Plant Community Relations Plan⁴ specifies the approach to overall community involvement. Some activities, such as National Environmental Policy Act (NEPA) compliance have other specific requirements.

9.1 Collaboration and Endorsement

Project plan endorsement results in projects where staff, management, clients, and essential third parties all focus toward the same objectives, support the team effort to accomplish the objectives, and commit to offer whatever assistance necessary to successfully complete the project. Endorsement is not the same as approval. Endorsement means proactive commitment, not passive lack of objections.

9.1.1 Project team

Project team endorsement begins with joint development of the project charter and work plan. It occurs when those expected to do the work described in the plan carefully review what is expected of them, and commit to completing the project as planned.

9.1.2 Management team

Management endorsement occurs when those controlling the corporate resources formally have the opportunity to approve the plan, and officially commit to supplying the resources necessary for success.

9.1.3 Internal support organizations

Internal support organizations are an extension of the project team, and achieve endorsement through having the opportunity to apply their expertise to the working plan, and formally commit to what is expected of them.

9.1.4 DOE

Client endorsement gives the client the opportunity to review, understand, and agree to the details of the scope and methods to accomplish the project. This is the most important project endorsement, assuring that the work plan is properly focused.

9.1.5 External parties (public and regulators)

Third party endorsements for this Rocky Flats project includes the public, including special interest groups, and CDPHE.

9.2 Ongoing collaboration

Project reporting is a primary means for communication to the stakeholders on how the project is performing to plan. Review meetings allow the stakeholders the opportunity to interact with the project team for two-way communication. Bi-weekly review meetings will be held with the client / stakeholders.

10. ORGANIZATION AND RESPONSIBILITIES

This section describes the Building 788 Cluster RCRA Closure Project organization structure, functions, and interfaces.

10.1 Team Organization and Structure

Figure 3 illustrates the structure of the Building 788 Cluster RCRA Closure project team.

10.2 Team Processes

The process used by the project team follows Process Delivery System (PDS) methodology. These processes include:

- Develop the work plan.
- Obtain project endorsement.
- Authorize work performance.
- Implement work.
- Measure and report work performance.
- Control work to the plan.

- Change the plan if necessary.
- Document work performance and results.
- Communicate.
- Close the project.

10.3 Responsibilities

The Contract Work Breakdown Structure (CWBS) assigns responsibility to a person for each element of the WBS. The responsibility depends on the level of the WBS. Managers at the lowest level of the WBS have the responsibility to plan and perform the work in the work package, and to report progress. They can authorize changes in the details of the work package that do not affect the PMB or Performance Measures. Changes that impact thresholds must follow the Baseline Change Proposal (BCP) process, as described in Planning and Integration (P&I) Work Instruction INST-002.

Appendix A contains the responsibility assignments for the project team members. Responsibilities are consistent with Section 1.4 of the Facility Disposition Program Manual (FDPM). The project team and all individuals with assigned responsibility have reviewed and agreed to the assignments.

10.4 Team Interfaces

Interfaces with other projects include:

- Solar Ponds Plume Project
- Equipment Debris Removal Process
- Clarifier RCRA Stabilization

Interfaces with other site organizations include:

- Waste Operations / Management
- Property Utilization and Disposal (PU&D)
- Site Operations
- Environmental Compliance
- Environmental Restoration
- SEP Waste Water Management Group
- Traffic Department
- Security
- Quality
- Nuclear Safety
- Closure Projects Engineering & Integration

Special considerations for interfaces between buildings include:

- Landlord Inspection Report
- Building 910
- Electrical Tie-ins to Plant Power

Interfaces outside of the Rocky Flats organizations include:

- CDPHE
- Environmental Protection Agency (EPA)

Interfaces with DOE include:

- Facility Closure

10.5 Subcontractor's Interfaces

Kaiser-Hill acts as the Integrating contractor to DOE for all Closure Projects, and communicates project scope and requirements to the Rocky Mountain Remediation Services (RMRS) Construction Management group. This information is then disseminated to the Fixed Price Contractor through the RMRS Project Manager. The Fixed Priced Contractor interfaces through the RMRS Project Manager.

BUILDING 788 CLUSTER DECOMMISSIONING PROJECT

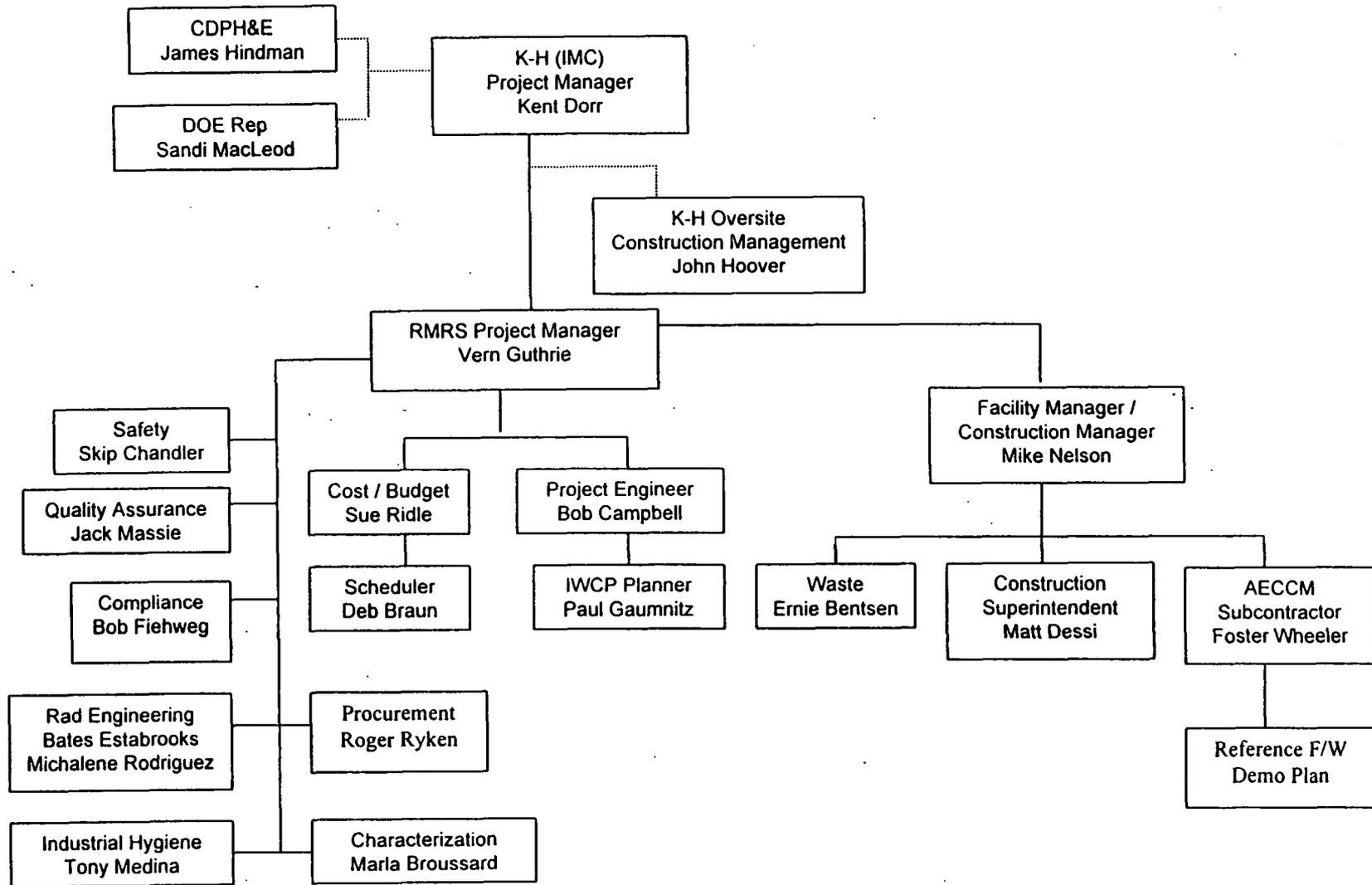


Figure 3: The organization structure and functions of the Building 788 Cluster Decommissioning Project Team supports achieving the project vision.

11. PROJECT WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure design derives from the logical structure of the work. WBS responsibility is assigned using the CWBS. Figure 4 illustrates the WBS for the Building 788 Cluster RCRA Closure project, and is identified in element 1.1.06.01.04.06.

<u>WBS Code</u>	<u>WBS Title</u>	<u>Amount</u>
1.1.06.01.04.06.01	Bldg. 788 Planning Decom.	\$90,414
1.1.06.01.04.06.01	Bldg. 788 Engineering Decom.	\$209,851
1.1.06.01.04.06.02	Bldg. 788 Characterization Decom.	\$298,822
1.1.06.01.04.06.03	Bldg. 788 Site Preparation Decom.	\$263,337
1.1.06.01.04.06.05	Bldg. 788 Dismantlement Decom.	\$427,490
1.1.06.01.04.06.06	Bldg. 788 Demolition Decom.	\$707,337
1.1.06.01.04.06.07	Bldg. 788 Project & Operations Mgmt Decom.	\$479,948
1.1.06.01.04.06.08	Bldg. 788 Support Services Decom.	\$627,261
Total		\$3,104,460

Figure 4: The Building 788 Cluster RCRA Closure project Work Breakdown Structure.

12. BUDGET

The project team creates the overall life cycle Budgeted Cost of Work Scheduled (BCWS) for the Building 788 Cluster RCRA Closure project. The BCWS derives from the Basis of Estimate Software Tool (BEST) database. The database represents the official cost estimate for the project. Table 3 illustrates the life cycle cost for the Building 788 Cluster RCRA Closure project. No contingency funding has been allocated for the Building 788 Cluster RCRA Closure project therefore no contingency controls are identified in this PEP.

<u>Fiscal Year</u>	<u>Labor \$</u>	<u>Non-Labor \$</u>	<u>Total FY \$</u>
FY 1999	\$1,289K	\$1,815K	\$3,104K
Total Baseline	\$1,289K	\$1,815K	\$3,104K
Contingency	-0-	-0-	-0-
Escalation	-0-	-0-	-0-
Project Estimate At Completion (EAC)	\$1,289K	\$1,815K	\$3,104K

This budget is based on the current Basis of Estimate (BOE).

Table 3: Life Cycle Estimate for the Building 788 Cluster RCRA Closure project

12.1 Basis and Validation

Project cost estimates are included in the BEST database. All cost estimates within BEST have been validated by individual teams, led by the Kaiser-Hill P&I organizations.

12.2 Financial Work Authorization

The Kaiser-Hill project control system uses three levels of authorization:

- 1) Authorization from DOE Rocky Flats Field Office (RFFO) to Kaiser-Hill.
- 2) Authorization from Kaiser-Hill to the prime subcontractors.
- 3) Authorization from Kaiser-Hill and the prime subcontractors to lower-tier subcontractors.

Authorization from DOE, RFFO to Kaiser-Hill – Work authorization from DOE, RFFO to Kaiser-Hill is performed at least once annually, just prior to the beginning of the new fiscal year (execution year). This authorization takes two forms: issue and approval of a PBD, and modification to the Kaiser-Hill contract to establish funding authority and allow Kaiser-Hill to incur costs. The PBD is issued at the project level, while funding authorization is made according to Budget & Reporting (B&R) code structure. During the course of the execution year funding authorization is updated based on release of incremental funding or as the result of an SCCB action, if required.

Authorization from Kaiser-Hill to the Prime Subcontractor – Subsequent to receiving authorization from DOE, RFFO, Kaiser-Hill issues work authorization to the prime subcontractors. This authorization takes the form of a contract modification referred to as a Procurement Authorization Document (PAD). The subcontractors ability to incur costs is limited to the amount of the PAD. Thus, the PAD is modified periodically throughout the execution year. The PAD is issued at the lowest work breakdown structure level by which the prime subcontractor(s) will collect and accrue cost. However, due to late authorization from Congress, continuing resolution may be issued to continue work until formal budget authorization.

Authorization from Kaiser-Hill and the Prime Subcontractors to Lower-tier Subcontractors - These authorizations to 3rd tier subcontractors take the form of purchase orders. Each order establishes work scope, terms and conditions, and authorized cost.

13. PROJECT SCHEDULE

Project schedules are created, maintained and statused with the latest version of Primavera Project Planner (P3). This integrated project plan and management tool aids the project team in defining and controlling to the critical path schedule and resource requirements. The lowest level of the WBS has defined those activities necessary for completion of the project. The Building 788 Cluster RCRA Closure project has developed a Resource Loaded P3 Schedule to define the work scope and budget. This schedule will be used throughout the life of the project to track schedule progress and life cycle costs. Figure 5 shows the schedule for the life cycle of the project at the 7th WBS level.

13.1 Performance Measurement Baseline Schedule

Figure 4 illustrates the Building 788 Cluster RCRA Closure project summary schedule. It aligns with the Closure Project Baseline (CPB) schedule. The CPB includes the life cycle schedule of all the work scope included in the Focus on 2006 Plan. Schedule detail reflects the "Rolling Wave" method of scheduling, which produces a decreasing level of detail as time is extended from the current FY.

Kaiser-Hill updates the CPB periodically as a major update revision. It is published on CD-ROM, and therefore not subject to inadvertent modification. The CPB includes the BEST cost estimate detail. The cost estimate detail also contains the basis for the cost estimates. It is modified through the year by approved BCPs, and designated the Current Working Baseline (CWB) schedule.

13.2 Working Plans

The Project team has developed action tracking documents and a detailed schedule that provide direction for day to day project work. These tools were developed to improve management of uncertainty and to achieve compliance to the "Order on Consent" and the Performance Measure.

Figure 5: The Building 788 Cluster Decommissioning project level 1 schedule.

Activity ID	Activity Description	% com	Orig Dur	Rem Dur	Early start	Early finish	FY98												FY99												FY00											
							A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J								
Bldg. 788 Cluster Decommissioning																																										
207 CLUSTER DECOMMISSIONING																																										
+ PROJECT & OPERATIONS MANAGEMENT																																										
		0	210	210	01OCT98	01SEP99	[Progress Bar]																																			
	+ PLANNING	0	65	65	01OCT98	15JAN99	[Progress Bar]																																			
	+ ENGINEERING	0	65	65	05OCT98	18JAN99	[Progress Bar]																																			
	+ CHARACTERIZATION	0	204	204	12OCT98	01SEP99	[Progress Bar]																																			
	+ SUPPORT SERVICES	0	210	210	01OCT98	01SEP99	[Progress Bar]																																			
	+ SITE PREPARATION	0	55	55	10MAR99	03JUN99	[Progress Bar]																																			
	+ DEMOLITION	0	112	112	10MAR99	01SEP99	[Progress Bar]																																			
	+ DISMANTLEMENT	0	112	112	10MAR99	01SEP99	[Progress Bar]																																			

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14. PROJECT CONTROLS, REPORTING, AND DOCUMENTATION

The following topics are areas of special interest for the Building 788 Cluster RCRA Closure project.

14.1 Quality Management

The Site Quality Assurance Manual⁵ defines the Quality Management System for the RFCP. The system includes assignment of responsibility for quality, the governing quality documents, and the different roles -management, performance, and assessment- to obtain and ensure quality performance and product. The Quality Assurance Manual is consistent with DOE G-830.120-Rev. 0, Implementation Guide for use with 10CFR 830.120 Quality Assurance. In addition to the Site Quality Assurance Manual, each Principle Subcontractor has a company specific Quality Assurance Program.

Specific quality requirements for this project are:

- Fixed Price subcontractor will provide a job specific Quality Assurance Plan (QAP) in compliance with site documents and programs.

14.2 Work Instructions

Kaiser-Hill uses a comprehensive set of written policies and procedures to guide work performance. The Quality Assurance Program Infrastructure Document List⁶ relates these policies and procedures to specific quality requirements. It also designates the organization responsible to generate and maintain the document.

A set of P&I Standards and Work Instructions describe the project planning and control system. These Work Instructions provide detail on how to use the systems. Tables 3 and 4 of the RFCP Project Management Plan⁷ list the P&I Standards and Work Instructions. They are also available on the P&I Intranet Home Page, and through document control.

14.2.1 Project Meetings

The Building 788 Cluster RCRA Closure project uses daily and weekly meetings to enhance project communications. Meetings typically include the following areas of discussion: reports from all areas of the project team, including, project management, engineering, safety, environmental compliance, radiological engineering, project analyst, estimating, and construction management, waste management, etc.

The following is a list of the planned project meetings:

- | | |
|---------------------------------------|--------------------------------------|
| • Every Day (during field activities) | Plan of the Day/Next Day |
| • Every Monday | Plan of the Week |
| • Every Monday | Project Status meeting with K-H |
| • Monthly | Project Variance Report is generated |

In addition, the project holds ad-hoc meetings as necessary to communicate or solve problems. All ad-hoc meetings must have a prior agenda and issue meeting minutes, including actions and commitments as applicable. Meeting minutes are logged and maintained in the project file.

14.2.2 Records Management Procedures

RMRS will supply the Document Control and Records Management programs and services, with oversight by Kaiser-Hill. Kaiser-Hill provides Engineering Document Control. RMRS is responsible to assure adherence to the Site Document Control and Records Management Programs through a company specific Quality Assurance Program.

The Correspondence Manual and procedure 1-11000-ADM-003, Correspondence Control Program, describe how to control documents.

Procedure 1-77000-RM-001, Records Management Guidance for Records Sources, describe how the Kaiser-Hill Team controls records. This procedure establishes the requirements and responsibilities of Site record sources for the identification, generation, correction, authentication, protection, and turnover of records for all media.

Project records will be complied with and maintained for this project in the RCRA Operating Record. This file will contain adequate documentation to explain and describe the decision process that leads to the selection of a particular response action. It will include the rationale for the selected remediation and document any courses of action which were considered, but ultimately rejected.

14.2.3 Financial Procedures

PMB budgets are automatically authorized through the CWBS. The project team monitors cost plan to ensure that project budget is managed.

14.3 Control

The project teams shall status the project schedule at least once a week. The project budget is based on a resource-loaded work activity schedule. The schedule and resources will be analyzed weekly in order to assure the plan is valid. Any unforeseen changes to the plan will be addressed through the Site Change Control Board utilizing a BCP or an Administrative Change Proposal (ACP).

14.3.1 Status Measurement

Project status includes development and collection of status data, and ensuring that the schedule reflects the current operating logic, such as pertinent performance measures and milestones. P&I Work Instructions INST-122 and INST-123 describe status activities.

Activity performers input two pieces of information to define schedule status. They input this information on the working schedule. P&I then rolls status data into the Closure Project Baseline (CPB). Percent complete qualifies the amount of the work that is complete as a fraction of the total work. Performers should derive percent complete to calculate the Budgeted Cost of Work Performed (BCWP). In addition, performers must input the remaining duration estimated for each task, which updates the future schedule. Work in the field will be performed

DE-AC34-95RF00825, Paragraph H. 16. All baseline changes require documented approval prior to implementation. All baseline change documents submitted to DOE RFFO must be processed and approved through the Internal Change Control Board (ICCB).

As a control mechanism to define the types of processing and management approvals required on BCPs, Control Types are categorized as Type I, II, or Administrative. These thresholds are amended periodically by DOE.

Type I BCPs are transmitted to the SCCB Chairperson for review and approval. Type II BCPs are submitted to RFFO prior to the monthly SCCB meeting for baseline document revision update and may require formal review by the SCCB, if requested.

No retroactive changes are authorized by any BCPs. Any adjustments authorized by a BCP must be made in the current or a future performance period. This ensures that cost/performance information at the activity level, previously reported to the DOE, is not changed and that the RFETS chronological Cost Performance Reports can be traced and remain auditable. This includes baseline changes resulting from adjustments in indirect rates.

The K-H Project Manager will submit all such change requests to the DOE RFFO office. Baseline Change Control Proposals may be categorized as the following:

Type I or External BCP require the SCCB Chairperson approval prior to implementation.

Type II or Internal BCP requires ICCB Chairperson approval prior to implementation. These are changes at the PBS/WAD level such as internal milestones or PBS cost plan changes that do not breach Type I thresholds. Scope change (greater than \$500K) can only be implemented with an approved Type I BCP. A Type II BCP is processed internal to K-H through the ICCB and forwarded to RFFO for review prior to the next monthly SCCB.

Administrative BCP – administrative changes are modifications that do not significantly impact the scope, schedule, or cost baseline at the WAD or WAD-let level. These changes provide for department code changes, cost element changes and other minor modifications within a WAD-let which have no impact on the CWB [monthly or total Budget At Completion (BAC)]. A change that impacts the monthly time phasing of BCWS and does not breach any Type I or II thresholds may be accomplished with an ACP. However, ACPs that impact BCWS phasing must have an approval signature from the P&I Director. Changes to the cost, schedule, or technical baselines cannot be processed using an Administrative BCP.

15. REFERENCE INFORMATION

15.1 Acronyms

ACP	Administrative Change Proposal
ACWP	Actual Cost of Work Performed
AECOM	Architectural Engineering/Construction/Construction Management
AHA	Activity Hazard Analysis
ALARA	As Low As Reasonably Achievable
B&R	Budget and Reporting
BAC	Budget At Completion
BCC	Baseline Change Control
BCP	Baseline Change Proposal
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Scheduled
BEST	Basis of Estimate Software Tool
BOE	Basis of Estimate
CA	Contaminated Area
CAA	Clean Air Act
CDD	Closure Description Document
CDH	Colorado Department of Health
CDPHE	Colorado Department of Public Health and Environment
CPB	Closure Project Baseline
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (The 'Superfund' Law)
COOP	Conduct of Operations
CSO	Customer Service Organization
CWA	Clean Water Act
CWB	Current Working Baseline
CWBS	Contract Work Breakdown Structure
D&D	Decontamination and Decommissioning
DOE	Department of Energy
DOT	Department of Transportation
EAC	Estimate at Completion
EPA	Environmental Protection Agency
ER	Environmental Restoration
EW	Environmental Waste
FDPM	Facility Disposition Program Manual
FFCA	Federal Facility Compliance Act
FPCO	Final Project Close Out
FY	Fiscal Year
GFE	Government Furnished Equipment
GSA	Government Services Administration
HASP	Health and Safety Plan
HAZ	Hazardous Waste
HUD	Housing Urban Development

by a Subcontractor who will provide a "Table of Values" based on work to be completed per the proposal.

Remaining activity duration may change the CWBS schedule activity duration. The schedule process adds the remaining duration to time now. The schedule then recalculates successor activities. This may extend the project critical path, or change the critical path if activities on previous non-critical paths are delayed.

The financial system collects actual cost in accordance with the Work Breakdown Structure. In addition, project managers must ensure that costs incurred but not yet paid, such as subcontracts, are accrued. This enables effective collection and reporting of the Actual Cost of Work Performed (AWCP).

14.3.2 Analysis

Monthly analysis of project performance determines the management actions necessary to meet the project scope, schedule and cost requirements, and to look for ways to accelerate the project. Triggers for project analysis include:

- Status (comparison of Site Wide Baseline Status (SWBS) to PMB) shows critical path behind schedule any amount.
- Status (comparison of CWBS to PMB) changes the critical path.
- Stated schedule non-critical paths show very little, zero, or negative float. (Comparison of CWBS to PMB. We do not use PMB float data alone, as it may mislead performers)
- Stated schedule moves milestones (including Performance Measures) beyond target dates.
- Objective performance measures below plan (e.g., liters of liquid processed vs. time.)
- Negative project cost variance. (Note that earned value baseline does not include contingency or escalation.)
- Project EAC exceeds estimated EAC.
- New scope information.
- New project interface information.
- New resource availability information.
- Project risk factor trigger.

This analysis leads to action plans to eliminate variances. If appropriate (due to potential magnitude of impact or lack of clarity on the actual cause), the project team performs a root cause analysis to support response action decisions.

14.3.3 Reports

Kaiser-Hill uses a consistent format to report monthly progress against the baseline plan. Project reports include schedule comparison, milestone, and earned value information necessary to control the projects. Project Performance Reports (PPRs) will be developed monthly explaining the schedule and cost variances as well as the corrective actions required to eliminate/minimize impacts. Impacts to the project are identified if no corrective actions are taken. Accomplishments and achievements are listed along with issues and concerns the project team has identified. Performance measures and milestone status are discussed and the estimate at completion is explained.

Due to the fiscal year funding provision for the RFCP, the performance plan is 'zeroed out' at the beginning of each fiscal year. P&I statuses performance on a cumulative basis throughout the fiscal year.

Safety performance information is published monthly. It includes trends of the key safety performance measures.

Table 4 presents the list of Project documents and the approval, transmittal, and customer distribution requirements for the major project documents.

Table 4: Project document origination, approval, and distribution matrix.

Document	Frequency	Creator	Approver	Distribution
Project Execution Plan	Living Document	Project Team (P&I support)	Project Manager, Kaiser-Hill Manager	Project Team, Kaiser-Hill Managers, DOE-RFFO
Project Schedule (Primavera)	Baseline-one time	Project Team (P&I support)	Project Manager, Kaiser-Hill Manager	Intranet
Project Cost Estimate [BEST]	Life cycle-one time Annual work plan	Project Team (P&I support)	Project Manager, Kaiser-Hill Manager	Intranet CD-ROM
PBS	Annual	Project Team	Project Manager, Kaiser-Hill Manager	DOE Project, PBS, and WAD Managers
BCPs	As needed	Project Team	P&I SCCB or ICCB	SCCB
Construction Reports	Daily	Project Team	Project Manager	K-H Construction Management
PPRs Project Status Report	Monthly	Project Team (P&I support)	Project Manager	Project Team, DOE-RFFO, Contractor Managers
Performance Measure Completion Report	As required	PBS/WAD Manager	Responsible 10-speed DOE-RFFO	K-H contracts K-H P&I DOE

14.4 Change Management

P&I-INST-004 provides guidance for processing proposed changes to the K-H CPB. The site baseline is maintained in the K-H automated Project Control System. This instruction also provides the specific process, format, and submission guidelines for Baseline Change Control (BCC) within K-H, between K-H and the Prime Subcontractors, and between K-H and the DOE RFFO. This is in support of the K-H Management Control System Procedure 1-R97-F&A-MCS-001, Section 5.5, Baseline Change Control, DOE RFFO Guidance, and the DOE Contract

ICCB	Internal Change Control Board (Kaiser-Hill Chaired)
IHSS	Individual Hazardous Substance Site
IM/IRA	Interim Measure/Interim Remedial Action
IMC	Integrating Management Contractor
ISMS	Integrated Safety Management System
ITS	Interceptor Trench System
IWCP	Integrated Work Control Process
K-H	Kaiser-Hill
LLM	Low Level Mixed Waste
LLW	Low Level Waste
LO/TO	Lockout / Tagout
MAL	Master Activity List
MOU	Memorandum of Understanding
MST	Modular Storage Tank
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
NTS	Nevada Test Site
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P3	Primavera Project Planner
P&I	Planning and Integration
PA&T	Project Acceptance and Transfer
PA	Protected Area
PAAA	Price Anderson Amendment Act
PAD	Project Authorization Document
PBD	Project Baseline Document
PBS	Project Baseline Summary
PCB	Polychlorinated Biphenyls
pCi/l	picoCuries per liter
PDS	Process Delivery System
PEP	Project Execution Plan
PMB	Performance Measurement Baseline
PPE	Personnel Protective Equipment
PPR	Project Performance Reports
PU&D	Property Utilization and Disposal
P/WRE	Property / Waste Release Evaluation
QA	Quality Assurance
QAP	Quality Assurance Plan
QA/QC	Quality Assurance Quality Control Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFCP	Rocky Flats Closure Project
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office

RMRS	Rocky Mountain Remediation Services
RWP	Radiological Work Permit
SAC	Schedule at Completion
SCCB	Site Change Control Board (RFFO Chaired)
SEP	Solar Evaporation Ponds
SHAR	Site Hazardous Assessment Report
SME	Subject Matter Expert
STP	Site Treatment Plan
SWBS	Site Wide Baseline Status
SWDA	Solid Waste Disposal Act
SWO	Solid Waste Operations
TRU	Transuranic Waste
TSCA	Toxic Substance Control Act
WAD	Work Authorization Document
WBS	Work Breakdown Structure
WGI	Waste Generator Instruction
WMP	Waste Management Plan
WSRIC	Waste Stream Residue Identification and Characterization

15.2 References

- 1 Kaiser-Hill Company, Planning and Integration, Rocky Flats Closure Project (RFCP) Project Management Plan, October, 1997
- 2 OU4 Solar Evaporation Ponds Interim Measure/Interim Remedial Action, Environmental Assessment Decision Document, Proposed, U.S. Department of Energy, RFETS, February 1995
- 3 Rocky Flats Environmental Technical Site, 1997 TANK MANAGEMENT PLAN, June 30, 1997
- 4 Rocky Flats Plant Community Relations Plan, U.S. Department of Energy, December 1, 1991
- 5 Kaiser-Hill Company, LLC, ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE QUALITY ASSURANCE MANUAL, ADC-96-00042, 2/2/96
- 6 Site Quality Council, Quality Assurance Program Infrastructure Document List, Revision 2, 5/9/96
- 7 Kaiser-Hill, Rocky Flats Closures Project (RFCP) Project Management Plan, October, 1997

APPENDIX A

Key Personnel and Responsibilities for the Building 788 Cluster RCRA Closure project include the following:

Position	Name	Phone # Pager # Fax #	Responsibilities
DOE User	Sandi Macleod	x3367 888-290-7955	Enforces government regulations. Communicates with Site external organizations regarding the closure program. Oversight of Closure Operations. Communications with IMC of external and RFFO inputs, including funding and overall direction. Interfacing with other regulatory agencies, stakeholders, and the public.
K-H (IMC) Project Manager	Kent Dorr	x6034 212-54333090	Has ultimate responsibility, accountability, and authority in any matter involving the project. Manages the project within the authorized funding and approved work scope and schedule. Ensures compliance with all regulatory and infrastructure requirements. Reviews and approves all major documents associated with the project. Requests assistance to oversee certain aspects of the work. Ensures the project team is made up of properly qualified safety personnel and subject matter experts. Implements decisions made through the use of the FDPM. Verifies the Facility "Type" with D&D Projects. Ensures the primary subcontractor executes the work within the assigned scope of work, on time, and within budget.
RMRS Project Mgr./Contract Technical Rep. (CTR)	C.L. "Vern" Guthrie	x7419 212-60906783	Identifies all activities within their areas of responsibility that require planning and collects available information for each activity. Ensures project is performed within cost, scope, and schedule. Coordinates staffs, directs, and controls the project implementation through completion. Requests assistance in developing the assessments of activity hazards and in selecting the appropriate work planning level. Ensures that teams are made up of the properly qualified safety personnel and subject matter experts. Implements decisions made through the use of the FDPM. Validates the Facility "Type" with D&D Projects.

Construction Manager	Mike Nelson	x7647 212-6334 6783	Responsible for project site management of the performing subcontractor. Oversees field activities to include sub tier contractors, and assigns construction personnel to project as necessary. Ensures periodic auditing and review, along with implementation and oversight of the IWCP, Activity Hazard Analysis (AHA), Quality Assurance Plan. Ensures contract specifications and drawings are current.
Facility Manager	Mike Nelson	x7647 212-6334 6783	Acts as the single point of authority in the Building 788 Complex. Ensures that all operations performed in the facility will comply with COOP. Ensures Lock Out / Tag Out (LO/TO) of equipment when required, Creates Operations Orders to control work.
Regulatory Compliance	Robert Fiehweg	7403 212-5881 2623	Coordinates all interactions with federal and state regulators. Implements project activities in compliance with applicable environmental and regulatory requirements. Reviews project documents as necessary to ensure the work is completed within existing permit requirements. Tracks and coordinates completion of regulatory commitments.
Project Engineer	Bob Campbell	9616 212-6219 8244	Has lead responsibility for the technical scope and engineering support activities associated with the Building 788 Cluster project. Reviews user needs for the project, translates them into appropriate engineering criteria and technical requirements, and coordinates or performs the engineering effort necessary to complete the project.
Waste Operations	Ernie Bentsen	6387 212-6273 6783	Provides primary oversight for Waste Management Operations. Ensures waste is properly characterized, packaged to Waste Generator Instructions, managed per RFETS procedures, and shipped to appropriate storage facilities.
Lead Radiological Engineer	Bates Estabrooks	3769 212-6469 6783	Oversite of Radiological Engineering functions. Integrator between Project Management, Radiological Engineering, and Radiological Operations.
Project Radiological Engineer	Michalene Rodriquez	6379 212-6502 6783	Implements an effective radiation protection program as required by the RFETS Radiological Control Manual. Coordinates activities of the Radiological Technicians, and ensures adequate preparation and review of RWP's. Coordinates the completion of building surveys and characterization. Prepares Property/Waste Release Evaluations (P/WRE) for project waste.
Cost / Budget	Sue Ridle	3465 N/A 8244	Prepares project cost estimates from the WBS, resource information, project schedules, historical and commercial information, etc. Develops increasingly precise and accurate estimates as the project becomes better defined. Assists with data and justification information during the project Validation Review.

Scheduling	Deb Braun	7896 687-2775	Develops and maintains the project baseline schedule with critical path from WBS activities and resource data. Maintains all schedule development documentation.
Safety	Skip Chandler	6673 212-6232 4542	Reviews the subcontractor Health & Safety Plan. Monitors and reviews all safety criteria for the project to ensure activities are completed safely and within the correct authorization basis. Implements OSHA requirements that are factored into the project work packages. Maintains a direct reporting relationship to RMRS Health & Safety Manager, ensuring that project activities are compliant with applicable health and safety regulations.
Industrial Hygiene	Tony Medina	5830 212-6352 4542	See "Safety" above.
Quality Assurance	Jack Massie	7210 212-5678 4542	Perform oversight of project activities to ensure implementation of the Subcontractor, RMRS, and Site quality assurance requirements.
Planner/ IWCP	Paul Gaumnitz	6448 212-5697	Develops the IWCP's with input from the K-H project team.
Characterization	Marla Broussard	5688 212-6206	Leads effort to identify and characterize all potential material hazards in the cluster. Prepares Site Hazard Assessment Plan, and final Report. Interfaces with Compliance lead to ensure that all regulatory drivers are met, and that waste management activities comply with all regulations.

APPENDIX B

Project Baseline Summaries

1.1.06.01.04 207 Cluster Demolition

Cluster RCRA Closure includes the following tasks: Characterization; Site Preparation; Decontamination; Dismantlement; Demolition; and Project Management and Support Services. Specific activities include: equipment removal; holdup removal; unneeded property disposition; decontamination; facility disassembly and dismantlement; and demolition. The end state of these elements will be achieved when the identified facilities have been completely demolished and the residual waste has been removed. For each project, a Project Completion Report will be provided in accordance with RFCA and other applicable requirements.

1.1.06.01.04.06 Building 788 Cluster RCRA Closure

This element provides for RCRA Closure of the Building 788 cementation processing facility and Building 788 Annex waste storage facility. The physical work consists of removing and disposing of the installed equipment and dismantling the building. The specific work scope is detailed in the activities listed below. This element's scope also includes the removal of; B308A (solar ponds pump house), Tank 138 (clarifier sludge thickener tank), equipment associated with Treatment Unit 48, and relocation of T788A trailer. Level 6 technical scope is as described in the Level 5 summary element above. The foundation and floor slabs will remain. Foundations, floor slabs, and under building contamination, if present, will be addressed by WBS 1.1.06.01.06.

Work activities include:
Planning and Engineering
Characterization
Site Preparation
Dismantlement
Demolition
Project & Operations Management
Support Services

Attachment 1

Memorandum of Understanding

**MEMORANDUM OF UNDERSTANDING (MOU)
BETWEEN
SOLID WASTE OPERATIONS
AND
SS & ER PROJECTS**

This MOU is issued between Solid Waste Operations and SS & ER PROJECTS to aid in the transfer of Building 788 for the purpose of RCRA Closure. This includes associated equipment, i.e. clarifier, pug-mill, concrete hopper, Building 308A (pumphouse) and T788A.

As the below listed items are no longer in the building, it is Solid Waste Operations responsibility to disposition these items in PEMS:

Mass flow meter (0000281800)
Hyster fork lift (0002420700)
Intermountain Forklift (0002323100)
Bartlett liquid pump (0013286100)
Tank trailers (0003135000 and 0003382300)

The following equipment currently located at Building 788 will be utilized by the Building 788 project and will be returned to Solid Waste Operations upon project completion:

Nissan Forklift (0001788900)
Aegis scale (PCN unknown)

The present facility coordinator will remain available to provide process knowledge to aid in the characterization of Solar Pond debris, and to provide project support as necessary. This may include Lockout/Tagout (LO/TO) support, etc. The present facility coordinator will retain responsibility for conducting any RCRA surveillances that may be necessary. The present facility coordinator will be responsible to ensure that the MMS database is updated to reflect changes for preventative maintenance.

The effective date of the building transfer is March 9, 1999.

CONCURRENCE

Pete Sauer 3/9/99
Pete Sauer Date
Facility Coordinator

Vern Guthrie 3/9/99
Vern Guthrie Date
Project Manager

Attachment 2

Technical Scope Document

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1. OVERVIEW

The Building 788 Cluster is part of the 207 Cluster. The 788 Cluster includes Building 788, Trailer T788A, Clarifier tank, Solar Ponds (207A, B, and C), and miscellaneous structures and equipment in the vicinity. This project includes the general cleanup and waste packaging around the Solar Ponds, and the RCRA Closure of Building 788, Building 308A, Clarifier tank, and ancillary treatment equipment. The major components of work included are:

- Decommission Building 788
- Decommission the Clarifier tank and surrounding wood structure (Tank #138)
- Decommission the 308A pumphouse.
- Relocate Trailer T788A to another location at RFETS.
- Remove and package excess equipment and debris from in and around Solar Ponds 207A, 207B (north, middle, and south), and 207C, including miscellaneous electrical control stations, pumps, hoses, piping, access ramps, and platforms.
- Remove equipment from the exterior of Building 788 including, but not limited to the cement mixer, pug mill, concrete ramp, temporary loading facility, propane tank (Tank #139), and associated utilities.
- Remove electric power poles and lines to Building 788, and provide an alternate feed for the lights west of Pond 207C.
- Remove electric power poles and lines between Ponds 207A and B, and provide an alternate feed for the Modular Storage Tanks (MSTs).
- Close RCRA Permitted Storage Unit 21 (Building 788) and Interim Status Treatment Unit 48 (Clarifier, Building 308A, pug mill, cement mixer, and other ancillary equipment associated with pond water and sludge processing).
- Modify the Interceptor Trench System (ITS) pipeline to isolate Building 910. Due to possible changes in the future regulatory need for the ITS line, this item will be handled as a separate bid item for the Subcontractor.

2. FACILITY DESCRIPTION

2.1 Location

The Solar Ponds are located in the northeast area of the Protected Area (PA) at the Rocky Flats Environmental Technology Site (RFETS). Building 788 and the Clarifier tank are located between Solar Ponds 207A and 207C. The layout is shown in Figures 1 and 2.



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COMPANY



Rocky Mountain
Remediation Services, L.L.C.
... protecting the environment

TECHNICAL SCOPE
FOR
BUILDING 788 CLUSTER RCRA CLOSURE
PROJECT

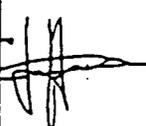
Kaiser-Hill, L.L.C.

Rocky Mountain Remediation Services, L.L.C.

Revision 0
October 15, 1998

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TECHNICAL SCOPE

REVISION	DESCRIPTION	ISSUE DATE	PROJECT ENGINEER	PROJECT MANAGER	KAISER-HILL
0	Original Issue	10-15-98	R. Campbell		

2.2 Building 788 Complex

The principal structures are Building 788, Trailer 788A, the Clarifier tank, a pug mill, and a truck loading station. Figure 3 shows the Clarifier, trailer, and part of Building 788.

2.2.1 Building 788

Building 788 is a permitted RCRA container storage facility (Unit 21) which consists of a single-story steel-frame structure on a concrete slab. The building is 220 feet long, 20 feet wide at the south end and 25 feet wide at the north end, with a 12 foot eave height. The building has two layers of metal siding with fiberglass insulation sandwiched between. A contamination control room (47 feet long by 10 feet wide) is located at the northwest corner.

2.2.2 Trailer T788A

Trailer T788A sits on the east side of Building 788. The trailer is 40 feet long, 10 feet wide, and 15 feet high. A skirt covers the undercarriage. A wooden porch is attached to the east wall of the trailer.

2.2.3 Clarifier

The Clarifier tank is located between Building 788 and Pond 207A, and is part of RCRA Interim Status Treatment Unit 48 (Unit 48 also includes the pug mill, cement mixer, Building 308A, and associated ancillary equipment). The Clarifier is a 30,000 gallon open-top, cylindrical tank with a cone-shaped bottom. The diameter is 25 feet and the overall height is 10 feet. The bottom of the tank sits approximately 6 feet above the slab floor. The circular portion of the tank is constructed of ¼-inch steel plate and the cone portion is constructed of 5/16-inch steel plate.

A woodshed encloses the bottom of the tank, and the equipment used for processing the tank water and sludge. The shed rests on a concrete slab. Equipment inside the shed includes an air compressor, a pump assembly (to be removed by Waste Operations) and miscellaneous piping. Two pipes (sludge and slurry) run from the Clarifier to Building 788. The pipes are insulated, and labeled as asbestos free.

2.2.4 Pug Mill

The pug mill is located south of the Clarifier. It was used to mix pond sludge from the clarifier into pondcrete. The area around the pug mill includes a temporary structure built to transfer sludge from the Clarifier to a tanker truck. In addition, a concrete ramp utility poles, and a steel structure are located adjacent to the pug mill.

2.3 Solar Ponds

The 207A and B ponds are to the east, and the 207C pond is to the west of Building 788. All of the ponds were emptied of sludge and water; however, miscellaneous equipment and debris still remains.

The 207A pond is the largest of the ponds. The main equipment associated with the 207A pond is hose and transfer stations at the northeast and southeast corners, and a transfer pipe that runs along the south bank. There is a box north of the pond with two abandoned underground pipes that run to Building 774.

Miscellaneous wooden pallets and flexible hose are present both inside the pond and along the banks.

The three 207B Ponds (north, middle, and south) are east of the 207A Pond. The ponds are interconnected with transfer pipes between them with hand operated valves for isolation. The 207B Ponds have miscellaneous equipment and debris scattered throughout the area. The debris includes old piping and valve box on the east bank, waste boxes, wooden stairs, engine driven pumps, electrical disconnect racks, and heater unit.

The 308A pumphouse is a metal shelter installed on a concrete foundation, and is located between Ponds 207A and 207B north. The pumphouse was used to transfer water between the ponds. The pumps have been removed, but the piping remains.

The 207C Pond contains debris left over from sludge removal operations. Equipment including two front end loaders, crated Bobcat loader, Skytrack crane, two pontoon boats, row boat, and cement pumper will be removed prior to this project. The remnant materials around the 207C Pond include the metal frame and jersey highway barriers used for a canopy, hoses, plastic covering, piping, wooden access ramps, stairs and platforms, Skytrack equipment attachments, and miscellaneous wood pieces.

2.4 Pipelines

2.4.1 ITS Pipeline

The Interceptor Trench System (ITS) pipeline runs from the Modular Storage Tanks (MSTs) to Building 774. The pipeline runs underground from the MSTs to Building 910. From Building 910 the pipeline runs aboveground to Building 774. The pipe runs along the south bank of Pond 207B South, enters a valve station at the southeast corner of Pond 207A, then runs along the south bank and approximately half way along the west bank of Pond 207A before heading west. The pipeline crosses the south access road to Building 788, and runs south of Pond 207C towards Building 774. The section of pipe from Building 910 to just after the road crossing has electric heat tracing which is fed from Building 910. The pipeline is double wall high density (HDPE) with 3 in. inner and 8 in. outer pipe. Jersey highway barriers protect the pipeline near Building 910 and Ponds 207A and B.

2.4.2 Other Above Ground Pipelines

Above ground pipes also run along the south perimeter of the A and B Ponds. One pipe starts on the east bank of Pond 207B South and runs to Building 910. another runs from Building 910 to Pond 207A. The system was used to transfer water between the ponds and Building 910. These pipelines are currently not used.

2.5 Facility History

Pond 207A was constructed in 1956. The 207B Ponds were added in 1960, and 207C in 1970. The 308A pumphouse was added in 1964 on the existing foundation for the pumps which were installed in 1960. The ponds received wastewater and other wastes from all areas of RFETS. Cleanup of the ponds was started in the mid-1980's. The ponds are currently RCRA empty, but contain water from precipitation.

The Clarifier, pug mill, and related equipment were installed in 1985 to process the sludge from the ponds. The system was shut down in 1989 with sludge still in the Clarifier. The sludge was removed from the Clarifier in 1998.

Building 788 was constructed in 1985 to support the sludge operation. The north addition was added around 1986. The building is used to store low level radioactive, low level mixed, and hazardous wastes. Building 788 contains a contamination control room, which is used to decontaminate lightly contaminated materials and equipment. Trailer T788A was added around 1990. The Building 788 Cluster is located on Individual Hazardous Substance Site (IHSS) 101.

3. RCRA CLOSURE

The following activities are included in the scope of this project. The sequence of the activities may vary from the order listed.

3.1 Building 788 and Clarifier

- Building 788 will be decommissioned. Some items or surfaces may require decontamination or strip-out based on the Site Hazard Assessment Report (SHAR). The concrete slab will remain in place.
 - Reusable items inside and outside the building will be disconnected and sent by the Subcontractor to PU&D for disposition.
 - The handrail at the northwest entrance stairs will be removed.
 - The manhole cover and valve pit for the abandoned waste line inside Building 788 will remain in place.
 - Decontamination of the Building 788 and other concrete slabs that are left in place may be required based on the SHAR, final radioactive contamination surveys, and RCRA Closure Performance Standards to remove radioactive and/or hazardous contamination that may have resulted from spills or leaks.
- The Clarifier tank and woodshed will be decommissioned. The concrete slab will remain. Shears or nibblers will be used to section the tank walls. The use of thermal cutting or sawing to section the tank wall will be prohibited. The tank support ring (8" wide x 2" thick) may require the use of thermal cutting, which will require special radiological controls and precautions for lead based paint.

- Trailer 788A will be moved to a new location at RFETS. The skirting will be removed from the trailer; and the undercarriage will be upgraded by installing new axles, wheels, and tires as necessary. The wooden porch and walkway on the east wall of the trailer will be dismantled and disposed as waste. The transformer adjacent to the north side of the trailer will be disconnected and removed to PU&D.
- The filtrate, slurry, sludge, sump discharge, and waste drain pipes inside and outside of Building 788, the Clarifier, and pug mill associated with RCRA Unit 48 will be removed. The filtrate and sludge lines inside Building 788 are labeled as having radioactive contamination.
- All utility services connected to Building 788, T788A, the Clarifier, pug mill and other equipment will be disconnected and isolated. Wiring will be de-terminated at the power source as specified by the drawings. Conduits will be removed as specified by the drawings, with the remaining conduits abandoned in place and labeled. Wire that is left in conduits will be pulled back into the conduit.
- The two power poles at the southeast corner of B788 (B6-503 and B6-503A) will be removed to provide access to the south side of the Building 788 complex. Power will be re-fed from Building 774 to service the lights west of Pond 207C (refer to Section 3.3). The removed poles will be cut off at grade.
- Other utilities which include domestic water and telephone will be disconnected. The water will be shut off at the source near Building 783. Abandoned pipes will cut at grade or slab surface, capped or grouted, and labeled.
- The equipment and structures on the southeast side of Building 788 will be dismantled and removed. This includes the pug mill, steel rack, temporary equipment for sludge transfer, and the concrete/timber ramp. The flexible hose running from the Clarifier to the loading station will be also be removed.
- The equipment on the concrete pad on the northwest side of Building 788 will be dismantled as necessary. The equipment includes a concrete mixer, sump pump, hoses, and pipe.
- The propane tank northwest of Building 788 is vendor supplied, and will be emptied and removed by the vendor. The Subcontractor will disconnect the piping.

- The four fork trucks outside of Building 788 will go to PU&D.
- The cargo container and plastic tank northwest of Building 788 will be removed to PU&D. The cargo container may be used as a storage area for the Subcontractor during the RCRA Closure.
- Utility Pole 9 on the east side of Building 788 will be removed. The air monitoring station (Number 1) on the pole will be removed, and go to PU&D. K-H/Radian Air Quality must be notified prior to removal.
- The concrete stem walls and foundations on the west side of Building 788, and the concrete foundations on the south side will be left in place. The handrail on the NE corner of the 207C Pond will remain in place to avoid creating a fall hazard. Jersey highway barriers will be installed along the south section of the wall where the handrail has been removed. Fall protection will not have to be installed on the Building 788 foundation since the height is less than 4 feet.
- The abandoned process waste valve vault located adjacent to the access road south of Building 788 will be filled with compacted aggregate base course. The pipes and valves will remain in place. The jersey highway barriers will go to PU&D, and the bollards will be removed at grade.

Access to Building 788 and the Clarifier will be a concern. Vehicle traffic to the north and west sides of Building 788 is a dirt road off the North Perimeter Road. There is no readily available access to the east side of Building 788 where the Clarifier is located. The south access is blocked by the utility poles, pug mill, and equipment ramp / bridge. Use of the northern access lane will require removal of T788A. The Subcontractor will determine how to access the job site, and determine what protective measures will be taken.

3.2 Pond Debris Cleanup

All debris, equipment, material, and waste including, but not limited to, the following, will be removed from the Solar Ponds.

3.2.1 207A Pond

- Flexible hose from the pond and banks.
- Motor control center rack on the west bank southeast of Building 788.
- Electrical disconnect on the east bank.
- Pallets stacked on the basin floor at the southwest corner.
- The transfer pipe from the 308A pump house will be capped at the flanged connection adjacent to the pond liner.

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- Steel trough from the Clarifier to the bottom of the west bank .
- Wood pipe box north of Pond 207A will be removed and the pipes capped at the concrete block.
- Miscellaneous wood and material from the pond perimeter.
- Metal fence posts south of the pond.
- Valve box on the southeast bank and the pipeline (Evaporator Feed) that runs to Building 910.
- Hose that runs from near the valve box to Pond 207B South.

3.2.2 207B Ponds

- The 308A Pumphouse will be removed to the foundation.
- The transfer piping from the 207B north Pond to the 308A Pumphouse will be cut and capped at grade. The remaining piping will be removed.
- Wooden stairs northwest of the 308A Pumphouse.
- Power Poles (1, 2, 3, and 4) and the four adjacent abandoned poles between the 207B and A Ponds from Building 910 to the 308A Pumphouse will be cut off at grade. The power will be re-fed from Building 774 (refer to Section 3.3).
- Five electrical control stations, and associated disconnects and racks will be removed to the foundation level.
- Air monitor (S8B) on Pole 4 at the southeast corner of the 308A Pumphouse. The monitor is currently out of service. K-H/Radian Air Quality must be notified prior to removal.
- Heater unit and associated equipment. The foundation will remain.
- Access stairs to the heater unit.
- Four sets of wooden stairs from the pond banks.
- Two valve stands and risers between the 207B Ponds will be cut and capped.
- Branch pipe from ITS line near Building 910 that runs to the south pond (Off Spec Discharge) will be removed and capped.
- The two concrete access ramps and steel grates between the 207B

and A Ponds will remain in place.

- Four portable gasoline engine pumps between Ponds 207A and B. Pumps are labeled as having internal contamination.

3.2.3 207C Pond

- Access stairs to east berm from Building 788.
- Wood access ramp to southeast corner of pond and canopy framing. The Jersey barriers will be relocated to top of the stem wall northeast of the pond.
- Miscellaneous tools, ladder, electrical cords, pallets, nylon ropes, dolly carts, rakes, squeegees, and other similar materials will be packaged and removed from the pond banks.
- Timbers used for holding plastic covering for equipment.
- Front end loader (Bobcat) attachments on north bank. The equipment includes a mill attachment and sweeper.
- Power wash (Hotsy) unit on the northeast bank.
- Hoses and fittings in pond and on banks.
- Miscellaneous wooden boxes and crates.

3.3 Site Preparation

This phase includes the installation of new power feeds for the MSTs and lights by Pond 207C, and modifying the ITS line to bypass Building 910. The following activities will be required:

3.3.1 ITS Pipeline Relocation

The underground section of the line from the MSTs will be reconnected to the aboveground section to Building 774 outside of Building 910. This will isolate Building 910 to permit future decommissioning. A manhole will be installed at the connection to provide access for maintenance. The aboveground portion running adjacent to Pond 207A will remain in place. A ramp or other protection from vehicle traffic will be required across the road south of Building 788 during this project. This will be bid as a separate item or as a modification. Regulatory approval might be obtain for a different management alternate for the ITS water, which would eliminate the need to pump the water to Building 774.

3.3.2 Electrical Re-feed

The two power poles at the southeast corner of Building 788 supply electrical power for the Building 788 Complex and the lights west of Pond 207C. Pole B6-503 has a 13.8kV feed from the south. Three transformers mounted on the pole provide the 480 volt feed for Building 788 and the lights. Pole B6-503A serves as a support for Pole B6-503. These poles will require removal to provide access to the Building 788 complex for RCRA Closure. The 480 volt lights will be re-fed from Building 774. The 2400 volt lights along the same fence are fed from Pole C6-504A. An additional support pole or guys will have to be installed at Pole C6-504A to maintain support to the remaining string of poles.

The electrical service for the 207B Pond equipment and the MSTs is fed from Building 910. The only remaining service required is for the poles on the north banks of the 207A and B Ponds which feed three sump pumps (Pole 5 – SW89, Pole 7 – SW106, and Pole 8 – SW 85), ITS sump pumphouse, MSTs, and air monitor north of the MSTs. Electrical power will be routed from the Building 774 with two new poles required to provide a feed to Pole 8. The lights between the 207A and B ponds were for pond operations and can be eliminated.

3.4 Property and Waste Management

The disposition of the equipment and material to be removed by this project will affect the method of removal, size reduction, segregation, and packaging. Waste Operations is responsible for removing any equipment or items they want to keep. Disposition of the remaining equipment and items will be the responsibility of this project. The project team along with Property Utilization & Disposal (PU&D) and Radiological Engineering will determine which items will be sent to PU&D. This determination will be made prior to the start of RCRA Closure. When possible, the items will be removed by the Contractor prior to the start of RCRA Closure. However, some items will need to be disconnected or removed by the Subcontractor before transfer to PU&D. The Statement of Work for the Subcontractor will include a detailed list of items going to PU&D. Contamination surveys will be performed as required. Anything that does not go to PU&D will be considered waste.

The Waste Management Plan identifies the handling and disposition of the waste generated, and will be determined based on the Site Hazard Assessment Report. The types of waste anticipated are sanitary, low level radioactive, and low level mixed (radioactive and RCRA hazardous). The waste requirements for the Subcontractor will be provided in Specification 01590, Waste Handling and Disposal. The Contractor Customer Service Organization will prepare Waste Generating Instructions (WGIs) for the project. General assumptions based on process knowledge are:

- Low level radioactive – exterior and interior material, equipment, and debris in the vicinity of the ponds is assumed to be low level radioactive waste unless surveys determine otherwise.

- Low level mixed – anything that was used to process or came in contact with the pond water or sludge is assumed to be low level mixed waste. May be downgraded to low level with decontamination or debris treatment in accordance with the CDD.

The following are possible dispositions for the items removed :

Free release disposal – Contamination surveys will be required for offsite disposal in a sanitary landfill (USA Waste). The Subcontractor will be responsible for the containers, packing, transportation, and disposal in accordance with 1-MAN-011-SWODM, Sanitary Waste Offsite Disposal Manual.

Free release recycle – metal waste that is found to be free of contamination be can go offsite for commercial recycle. The Subcontractor will be responsible for the containers, packing, transportation, and disposal.

Low level or mixed recycle – An RFETS approved facility (e.g. GTS Duratek) will be used to remelt/recycle metal with low level radioactive and/or hazardous contamination. The Clarifier and Building 788 will fall under this option. The Subcontractor will be responsible for the containers, packing, transportation, and recycle.

Low level disposal – low level waste that can not be recycled will be packaged by the Subcontractor and transferred to the Contractor for shipment to NTS. Waste containers will be provided by the Contractor.

Low level mixed disposal – mixed waste that can not be recycled or processed to remove hazardous constituents will be packaged by the Subcontractor and transferred to the Contractor for shipment to Envirocare. Waste containers will be provided by the Contractor.

3.5 Radioactive Contamination

Radiological contamination will be encountered on this project. The interior of Building 788 is posted as a Radiological Buffer Area (RBA). The Contamination Control Room inside Building 788, area east of Building 788, pond basins and berms, Clarifier tank and woodshed, area around the pug mill and truck loading station, and area west of Building 788 is posted as a Contamination Area (CA). The Building 788 exterior walls and roof are not posted, but may have surface contamination from the ponds.

The Subcontractor will be required to follow the requirements of the RFETS Radiological Control Manual and 10 CFR 835. A radiological survey plan will be written by the Contractor. Radiation surveys will be required for the assessment report, property disposition, RCRA Closure, and waste disposition. Subcontracted Radiological Control Technicians might be used to perform the

surveys during the RCRA Closure. All paperwork for property release evaluations and waste shipments will be performed by the Contractor.

4. PLANNING AND DOCUMENTATION

4.1 Characterization

A Site Hazard Assessment Report (SHAR) will be developed to appropriately characterize conditions for this project. The result of the sampling and analysis will drive the precautions and special measures to be exercised during the implementation phase of the project. The assessment report will be included with the Statement of Work to provide information to the Subcontractor regarding hazards to be encountered during the RCRA Closure.

4.2 Engineering

4.2.1 User Requirements Document

The User Requirement Document for the project is attached.

4.2.2 Activity Screen

An Activity Screen Form has been completed, and the level of planning required for the project is "Medium".

4.2.3 Engineering Design Package

A engineering design package will be developed by the Contractor for the scope outlined in this plan. The design will contain drawings, specifications, sketches, and photos as necessary, to adequately define the work. The key elements will entail definition of electrical removals and terminations, piping removals and isolation points, electrical re-feed details, piping modifications, and configuration control of existing RFETS drawings at project completion. The engineering package will comply with the Site Engineering Requirements Manual (SERM) and DES-210. The design package will include a Statement of Work to define specific requirements for the Subcontractor.

4.2.4 IWCP Package

The Contractor will prepare the IWCP package/s required for the RCRA Closure. A Type II engineered IWCP package in accordance with MAN-071-IWCP will be used. The IWCP package will be integrated with the design package; and will be prepared, reviewed, and approved concurrent with the design.

4.3 Closure Description

A Closure Description Document (CDD) will be prepared for the clean closure of RCRA Units 21 and 48. The CDD will reflect the closure plan requirements for the RCRA units Requirements for closure, sampling, inspection, and categorization for RCRA regulated waste applicable to the Subcontractor will be included in the Statement of Work.

4.4 Demolition Plan

A demolition plan will be prepared by the Subcontractor prior to the demolition of the Building 788 Cluster. The plan will comply with the requirements of 29 CFR 1926, Subpart T, OSHA Standards for the Construction Industry – Demolition. The plan will be submitted to the State.

4.5 Health and Safety

The Subcontractor will prepare a Project-Specific Health and Safety Plan in accordance with the requirements of Specification 01700, Subcontractor Safety and Health Requirements.

4.6 Quality Assurance

The Subcontractor will have a RFETS approved quality assurance program. The Subcontractor will be required to perform all quality control inspections required for this project. The quality requirements for the Subcontractor will be contained in Specification 01400, Quality Assurance/Control. Requirements for quality documentation and records to be provided by the Subcontractor will be contained in Specification 01300, Submittals.

4.7 Training

Training requirements for the Subcontractor will be contained in Specification 01010, Special Contract Requirements. All personnel involved on this project will be trained appropriately for the hazards that they will encounter and meet the minimum training requirements of RFETS. Training requirements will be identified in the Health and Safety Plan. A Training Plan and Matrix will be developed by the Subcontractor based on the SHAR. The Subcontractor shall be responsible for all training of the company's and lower tier subcontractors employees, and to maintain the required level of resources needed to complete the project within the contracted performance period.

4.8 Readiness Determination

Kaiser-Hill will perform a Management Review prior to initiating the RCRA Closure activities in accordance with MAN-040-RDM. An Environmental Readiness Evaluation will be performed by DOE. Subcontractor submittal reviews and personnel interviews will be required as part of the Readiness Determination.

5. ASSUMPTIONS

- All packaged waste inside Building 788 including the J40 glovebox will be removed by Waste Operations and is not included in the scope of this project.
- The clarifier tank will be empty and RCRA clean closed prior to execution of this project.
- The Morgan Cement Pumper, two pontoon boats, row boat, Skytrack, John Deere front end loader, Case front end loader, and crated Bobcat will be removed prior to the start of this project.

- Items inside the cargo container at the north side of the 207C Pond will be removed by Waste Operations.
- The four fork trucks outside Building 788 will go to PU&D.
- Equipment, including the pumps, used to remove the sludge from the Clarifier will be removed by Waste Operations.
- Concrete building and equipment slabs will remain in place.
- No soil or underslab characterization sampling will be performed by this project other than that required for excavation permits, and to determine radiological, and health and safety controls. Remediation of IHSS 101 is not part of this project.

Attachment 3

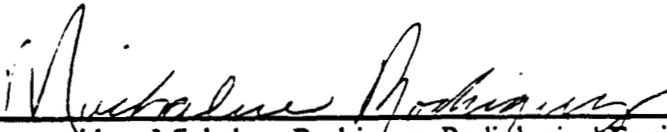
Radiological Historical Assessment

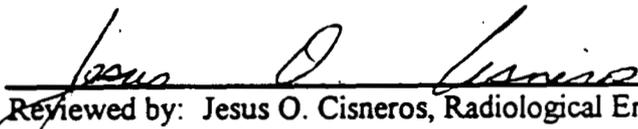
For the 207 Cluster

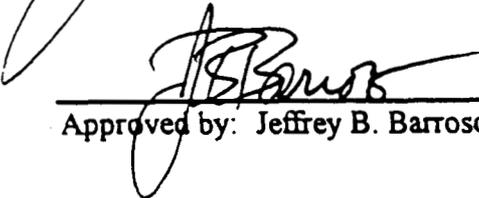


Rocky Mountain
Remediation Services, L.L.C
... protecting the environment

Radiological Historical Assessment for the 207 Cluster


Prepared by: Michalene Rodriguez, Radiological Engineer Date: 1 9/22/98


Reviewed by: Jesus O. Cisneros, Radiological Engineer Date: 1 9/22/98


Approved by: Jeffrey B. Barroso, Radiological Engineering Manager Date: 1 9/22/98

The Solar Evaporation Ponds, also known as the "high nitrate ponds," were used primarily for the disposal of low-level radioactive wastes contaminated with high concentrations of nitrate and for difficult to treat wastes.

Solar Pond 207A was constructed in 1956, and the date of last recorded use was August, 1991. Solar Pond 207B consists of three cells, North, Center, and South and has been used since its construction in 1960. Solar Pond 207C was constructed in 1970 primarily to allow the transfer of water from other solar ponds so that they could be repaired.

The most common characteristic of the wastes released to the solar ponds was high concentrations of nitrate. The ponds typically had untreated process waste placed in them, but on occasion treated process waste was also placed in the ponds. The monthly history reports from the Rocky Flats Plant Waste Group detailed the originating pond construction, quantity of water transferred, which pond the water was released to, and activity present in the water upon release. Based on these reports, a complete characterization of Pond 207A's water reveals detectable concentrations of plutonium, uranium, and various metals. The monthly history report also mentions radioactive contaminated aluminum scrap was disposed in the solar ponds.

Solar pond clean-up activities began in the mid-1980's and was a response action to the presence of waste materials in the solar ponds and the presence of contamination in nearby soils, groundwater, and surface water.

Rocky Flats Environmental Technology Site began using the 207A clarifier tank for the pondcrete sludge stabilization program in 1986. In 1989, the last of the process waste sludge was removed from Pond 207A and pumped into the open top tank. Clarifier operations were halted shortly thereafter leaving approximately 16,500 gallons of waste sludge and water in the 30,000 gallon capacity clarifier tank.

In 1985 Building 788 and Trailer 788A were constructed in support of the solar pond stabilization program. Building 788, to include a Contamination Control Room, was used for pondcrete processing, repackaging, and reprocessing. T788A was used for administrative purposes.

To ascertain the anticipated radionuclides and activities in the waste sludge, two laboratory analyses were conducted. The first study, gross alpha/beta analysis, was reported in June, 1992, from Brown and Root, Inc. (See Table 1). The second study was conducted by Halliburton NUS in January, 1995, reporting various radionuclides with corresponding activities (See Table 1). This sampling information was used to prepare a calculation for hazard categorization for the Clarifier to RCRA Closure Project.

Based on the "Radiological" hazard classification determination, radiological controls were required for the clarifier sludge removal activities.

Table I. Radioactivity results from laboratory

analyses conducted in 1992 and 1995.

<i>Brown & Root, Inc.</i>		<i>Halliburton NUS Corporation</i>	
Gross Alpha	3400-6600 pCi/g	Americium-241	13,000 pCi/g
Gross Beta	540 - 860 pCi/g	Plutonium-238	89 pCi/g
		Plutonium-239/240	3,900 pCi/g
		Uranium-233/234	28 pCi/g
		Uranium-235	1 pCi/g
		Uranium-238	32 pCi/g
		Strontium-90	1 pCi/g

Removal of the waste sludge from the clarifier tank began in June, 1998. A month prior, baseline characterization surveys were performed on the exterior, underside, catwalk, ladder and adjacent areas surrounding the clarifier tank. The survey results indicated no removable alpha/beta/gamma for the areas surveyed. During sludge removal, the interior portion of the tank was surveyed (exposed surface area). Removable alpha contamination ranging from 20 - 600 dpm/100 cm² was detected in several locations.

No known characterization surveys have been performed on Building 788 and T788A. However, since the Clarifier to RCRA Closure Project began, removable alpha/beta/gamma surveys have been recorded for the interior portions of Building 788 and T788A. No removable contamination was detected. No known surveys have been performed on the exterior portions of these buildings or in the Contamination Control Room located inside Building 788. The potential for exterior contamination on B788 and T788A exists due to their proximity to Solar Ponds A and C.

The Clarifier tank waste sludge removal was completed in August, 1998. High pressure spraying of the interior walls (up to the original waste/water line) of the clarifier tank is currently on-going. Closure will be attempted by a final rinse and sampling analysis. Radiological contamination surveys will be performed after the final rinse to determine the levels, if any, of removable alpha/beta contamination. A fixative may be sprayed on the interior portion of the tank depending on the results from these surveys.

Scoping surveys for Building 788 and Trailer 788A will need to be conducted in order to determine the associated hazards. A Radiological Engineering Report regarding the radiological controls for the Decontamination and RCRA Closure for the 207 Cluster will be addressed once scoping/characterizations surveys are complete.

REFERENCES

Historical Release Report For The Rocky Flats Plant. Volume I. June , 1992.

Safety Analysis For Clarifier To RCRA Stable Project. Nuclear Safety Technical Report. Revision 0. NSTR-017-97. Rocky Mountain Remediation Services, LLC. December. 1997.

Integrated Safety Management Plan For The Clarifier To RCRA Closure Project. Revision 0, RF/RMRS-98-213UN, Rocky Mountain Remediation Services, LLC. May. 1998.

Attachment 4

**Waste Management Plan
For the Building 788 Cluster**

RCRA Closure



RMRS/OPS-PRO.097

**WASTE MANAGEMENT PLAN
FOR THE
BUILDING 788 CLUSTER
RCRA CLOSURE PROJECT**

REVISION 0

DECEMBER 1998

A4-1

REVISION 0

DECEMBER 1998

This Waste Management Plan has been reviewed and approved by:

<u>Martin Wheeler</u> Martin Wheeler, Vice President Waste Management	<u>12/29/98</u> Date
<u>Vern Guthrie</u> Vern Guthrie, Project Manager	<u>12/29/98</u> Date
<u>Ted Hopkins</u> Ted Hopkins, Environmental Manager	<u>12/28/98</u> Date
<u>Ken Lenarcic</u> Ken Lenarcic, Traffic Management	<u>12/28/98</u> Date
<u>Mark Brooks</u> for Mark Brooks, Environmental Safety Health & Quality <small>J. Rose</small>	<u>12/23/98</u> Date
<u>Terry Loewenberg</u> Terry Loewenberg, Low Level Waste Programs	<u>12/29/98</u> Date
<u>Alan Church</u> Alan Church, Customer Service Organization	<u>12/28/98</u> Date

This Waste Management Plan was prepared by:

<u>Matthew D. Dessi</u> for M. D. Dessi Matthew D. Dessi, Project Engineer	<u>12/29/98</u> Date
<u>Ernie Bentsen</u> Ernie Bentsen, Waste Management Specialist	<u>12/28/98</u> Date

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ACRONYMS

ACM	Asbestos-containing material
AE/C/CM	Architectural Engineering / Construction / Construction Management
CCR	Colorado Code of Regulations
CDD	Closure Description Document
CDPHE	Colorado Department of Public Health and Environment
CSO	Customer Service Organization
D&D	Decommissioning and Demolition
DOE	U. S. Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
HAZ	Hazardous Waste
IDC	Item Description Code
IHSS	Individual Hazardous Substance Site
IM/IRA	Interim Measures / Interim Remedial Actions
LLW	Low Level Waste
LLM	Low Level Mixed Waste
LSA	Low Specific Activity
MAA	Material Accountability Area
NDA	Non-Destructive Assay
NON	Non-Hazardous Waste
NTS	Nevada Test Site
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PCB	Polychlorinated biphenyl
PPE	Personnel Protective Equipment
PU&D	Property Utilization and Disposal
PWRE	Property / Waste Release Evaluation
RCRA	Resource Conservation and Recovery Act
RMA	Radioactive Material Area
RMRS	Rocky Mountain Remediation Services, L.L.C.
RTR	Real Time Radiography
SCO	Surface Contaminated Object
SEP	Solar Evaporator Ponds
SITE	Rocky Flats Environmental Technology Site
SWO	Solid Waste Operations
TID	Tamper Indicating Device
TSCA	Toxic Substances Control Act
WAC	Waste Acceptance Criteria
WCO	Waste Certification Oversight
WEMS	Waste Environmental Management System
WFC	Waste Form Code
WGI	Waste Generator Instruction
WMP	Waste Management Plan
W/RT	Waste / Residue Traveler
WSRIC	Waste Stream and Residue Identification and Characterization

1.0 INTRODUCTION

Decontamination, RCRA Closure, dismantlement, and demolition of Rocky Flats Environmental Technology Site (the Site) facilities generate a variety of solid and liquid wastes. The waste type may be designated as Radioactive, Mixed, Hazardous, TSCA, Non-Regulated, Asbestos, and Industrial Sanitary waste and must be managed in accordance with State and Federal regulations.

The Solar Evaporation Ponds (SEP) are located in the Northeast quadrant of the Protected Area and includes Ponds 207A, 207B North, 207B Middle, 207B South and 207C. The ponds are asphalt lined and were used to store and treat liquid process waste generated from the Site's weapons production activities. Placement of process waste material into the SEP ceased in 1986 due to changes in waste treatment operations. In 1986, a Resource Conservation and Recovery Act (RCRA) Part B operating permit application was submitted to the Colorado Department of Public Health and Environment (CDPHE), reporting that the SEP were an interim status unit scheduled to be closed. The SEP were first identified as a Solid Waste Management Unit, which later became Individual Hazardous Substance Site (IHSS) 101. They are part of the Industrial Area Operable Unit (OU). The SEP have undergone various closure actions since 1988, when the Ponds Closure Plan was submitted to CDPHE. Interim Measures and Interim Remedial Actions (IM/IRAs) were developed in 1992 and 1995 to address closure and remedial actions.

The Building 788 Cluster includes Building 788, T788A, 207A Clarifier (Clarifier Tank T138), Building 308A pump house, the SEP and miscellaneous structures and equipment within the vicinity. Building 788 is a permanent storage facility located between ponds 207A and 207C. Building 788 was built in 1984 to support pondcrete operations and provide a facility to temporarily store pondcrete. An addition to the original building was constructed on the north side in 1986. The building is RCRA Unit 21, and is permitted to store low level mixed (LLM) waste. An interior structure is located in the northwest corner of the building that was used to repackage wastes and decontaminate material and equipment.

The 207A Clarifier Tank is part of Interim Status RCRA Unit 48, the Pondcrete Solidification Process. It was constructed as part of the treatment process to convert pond sludge into pondcrete, a mixture of SEP sludge and portland cement. The Clarifier Tank is located on the East side of Building 788. It became operational in 1986 and was shut down in 1989 with sludge remaining in approximately half of the tank. Recent operations have removed all sludge from the Clarifier Tank, which is now considered to be 'Clean Closed'. A fixative designed to stabilize any loose radioactive contamination may be applied to the inside of the Clarifier depending upon the radioactive survey results.

1.1 PURPOSE

The purpose of this document is to describe the waste management system that is in place, and to address waste management issues as they pertain to RCRA Closure and demolition of the Building 788 Cluster. The technical basis for development

of the Waste Management Plan (WMP) is outlined in the U.S. Department of Energy (DOE), Office of Environmental Management Decommissioning Resource Manual, dated August 1995, and the Draft Decommissioning Program Plan.

1.2 SCOPE

The scope of this project includes the RCRA Closure and demolition of Building 788, the Clarifier tank, ancillary treatment equipment, Building 308A pump house, relocation of T788A, and the general cleanup and waste packaging of waste around the SEP. The buildings will be removed to the slab grade as part of closure of RCRA Units 21 and 48 per the Closure Description Document (CDD).

During demolition and cleanup activities, this project will generate many types of waste, and also materials for recycle. Types of waste expected to be generated during each phase are discussed in Section 3. Management strategies for the types of waste are discussed in Section 4. Projected volumes are estimated in Table 1. These waste projections are based upon process knowledge, the site hazard assessment characterization, and preliminary planning.

In the event a waste stream not identified in this summary is encountered in field activities, the Project Manager and Waste Coordinator will immediately be notified. Project personnel and the Customer Service Representative will determine the most appropriate management and disposal options for an unanticipated waste stream.

2.0 RESPONSIBILITIES

This section of the WMP presents an overview of the project organization. Key waste management personnel for the project, and a description of their project responsibilities are presented below. Personnel associated with the handling, packaging, testing, shipment, processing, and pre-certification of low level waste shall be trained and qualified to applicable criteria, in accordance with the Training User's Manual, 1-1000-TUM.

2.1 Project Manager

The Project Manager is responsible for management of the project including overall responsibility for the waste generated by the project. These responsibilities include assuring adequate and timely characterization of the waste and a projection of the quantity of waste expected. The Project Manager ensures required plans are in place to handle the types of waste expected to be generated, and that a cost estimate is made and funds are available to dispose of the waste. The Project Manager oversees and coordinates all project-specific waste management issues, including preparation of the WMP and assuring its implementation. The Project Manager coordinates activities with the Waste Coordinator, Project Engineer, and Demolition Manager to ensure that issues associated with waste generation and management are addressed, including proper characterization, segregation, packaging, meeting appropriate Waste Acceptance Criteria (WAC), documentation, and transportation.

2.2 Waste Coordinator

This individual is the contact point for waste management activities for the project. The Waste Coordinator is responsible for ensuring project waste is in compliance with all relevant regulations and procedures. This includes ensuring all waste generated is properly characterized, packaged to appropriate Waste Generator Instructions (WGI), managed, documented, inspected, and shipped to a storage facility. The Waste Coordinator also reviews the work package for waste management actions.

The Waste Coordinator coordinates waste management activities across organizational lines and interfaces with groups such as Radiological Engineering, Waste Operations, Traffic Management, Radiological Operations, and the Architectural Engineering / Construction / Construction Management (AE/C/CM) Subcontractor (waste generator). This individual arranges for temporary storage and onsite transfers, and oversees subcontractor operations that involve loading of recycle material for offsite disposal.

2.3 AE/C/CM Subcontractor (Waste Generator)

The selected AE/C/CM subcontractor will be the waste generator and verifier of project waste, and will supply trained and qualified waste generators. They are responsible for proper waste identification, segregation, size reduction, packaging per the WGI, and completing the Waste/Residue Traveler (W/RT).

2.4 Customer Service Organization (CSO)

The CSO Representative performs a pre-job walk down to identify all potential waste streams that may be generated. CSO provides technical support regarding waste generation, packaging, and characterization review. The CSO generates a WGI for all waste streams when required. After waste is packaged, the CSO performs a waste package verification to ensure waste is packaged to the WGI and all applicable procedures.

2.5 Waste Operations Support Organization

The Waste Operations Organization provides services to the Site, including receipt, storage, and disposal of waste and other materials from the project. Waste Operations oversees the transportation of waste onsite to a designated storage area, manages the waste according to appropriate regulations, and coordinates offsite shipments to ensure the waste is sent to an approved disposal or recycle facility.

2.5.1 Solid Waste Operations (SWO)

Solid Waste Operations provides key process knowledge of waste items in the SEP area to assist in the proper waste characterization of material. SWO schedules the transfer of all waste packages that have been inspected and comply with the WGI to RMRS storage areas.

2.5.2 Waste Disposal Projects

The Waste Disposal Projects organization is responsible for the offsite shipment of project wastes and materials for recycling. Waste Disposal Projects prepares the waste for offsite shipment, maintains arrangements with offsite facilities for receipt of Site waste, schedules waste packages for recycle material, and provides services necessary to support project requirements.

2.6 Waste Inspector

The project Waste Inspector provides independent verification of all radioactive waste that is generated as part of the certification process. The Waste Inspector performs In-Process

Inspections to procedures and applicable variances, and performs a dock inspection on closed waste packages before being transferred to storage.

2.7 Waste Certification and Oversight (WCO)

Waste Certification and Oversight certifies that radioactive wastes are properly segregated and packaged through review of inspection, test, and surveillance information. WCO certifies that low level waste (LLW) and low level mixed waste (LLM) meet the applicable WAC for the disposal facility, and ensures radioactive waste is in compliance with DOE and federal regulatory requirements.

2.8 Traffic Manager

Traffic Management works with Waste Operations and the Waste Coordinator to ensure that waste packages are transported in a timely manner to the appropriate treatment, storage, or disposal location. Traffic Management is responsible to see that waste and recycle packages meet the requirements of the Department of Transportation (DOT) for shipping material offsite. This group also prepares the Bills of Lading or Environmental Protection Agency (EPA) Uniform Hazardous Waste Manifests for the waste shipments.

2.9 Radiological Engineer

The Radiological Engineer is responsible for identifying all radiological surveys necessary for the free release of equipment or materials to Property Utilization and Disposal (PU&D) or for offsite disposal. The project Radiological Engineer provides the documentation for the radiological characterization of waste material shipped as LSA or SCO. This includes providing Surface Contaminated Object (SCO) and Low Specific Activity (LSA) calculations to be used to demonstrate compliance with DOT shipping requirements. No equipment or building debris will be free released and allowed to leave the Building 788 Cluster as non-radioactive material without receiving a Property / Waste Release Evaluation (PWRE) from the project Radiological Engineer.

2.10 Characterization Specialist

The Characterization Specialist is responsible for directing all sampling and analysis of building areas for both radiological and hazardous materials identification. The Characterization Specialist works with the Radiological Engineer to develop the survey plans. They will work with environmental specialists to develop sampling strategies for determining hazards within the buildings and debris in the SEP area, including asbestos, lead, polychlorinated biphenyls (PCB), beryllium, and other potential hazardous materials. The Characterization Specialist generates a Site Hazard Assessment Plan, Sampling & Analysis plans, and other sampling strategies as needed, and the final Site Hazard Assessment Report for the project.

3.0 WASTE GENERATION

This section of the WMP provides a detailed description of the wastes and excess materials that will be generated by the Building 788 Cluster RCRA Closure Project. It is expected that the stripout and debris cleanup will start in January, 1999. Work activities are scheduled to be completed by June 30, 1999 to meet the Order on Consent that requires the Clarifier tank

removal. Waste will be transferred to storage units onsite until it is certified. Waste profiles to the Nevada Test Site (NTS) are in place, and profiles to Envirocare of Utah, Inc are currently under development as secondary waste to the Pond Sludge and Associated Debris profile.

Process knowledge, analytical data, and site hazard assessment characterization have been used to identify these wastes and excess materials. The D&D Waste Stream Residue Identification and Characterization (WSRIC) book will be used to document the characterization of project waste. It can be referenced to obtain characterization information and a description of the methods for waste segregation based on Item Description Codes (IDCs) or Waste Form Codes (WFCs). This information is required to properly characterize and prepare radioactive or hazardous waste for packaging and certification. Characterization and sampling requirements are defined in the Building 788 Site Hazard Assessment Plan (RF/RMRS-98-249). Project waste will be characterized and disposed of in accordance with the CDD. The Building 788 WSRIC book will be revised at the completion of the project to include D&D waste generation in Process 02.

Waste will be generated during each of the following phases of the project: (1) Building Strip-out, (2) Asbestos Abatement, and (3) Demolition. All waste types will follow a similar process flow for disposition. Before waste is generated, it must be identified and characterized using established methods and documentation. Project radioactive waste will be categorized as being either SCO or LSA to determine packaging requirements. A WGI or a packaging aid will be obtained from CSO for each unique waste output. Whenever possible waste material is segregated for reuse or recycle. The waste is then prepared for packaging. This may include decontamination, size reduction, draining of all free liquids, treatment to alternative treatment standards for hazardous debris, consolidation, and bagging. Project personnel will accomplish these activities, and prepare the required documentation.

Debris treatment may be an option for various impervious materials, such as rubber hoses used to transfer SEP water and sludge. Treatment Unit 788.3 located at the Building 966 Decontamination Pad has been permitted for mixed waste debris treatment for SEP debris. Debris will be treated in accordance with Table 1, Alternative Treatment Standards for Hazardous Debris (6 CCR 1007-3 Section 268.45). Waste items will be considered LLW after treatment if it meets the standards of a "clean debris surface" by visual inspection. The treatment unit consists of the decontamination pad, portable pump, portable transfer line and storage containers. The wash water is collected in the decontamination pads sump where it will be pumped into 55 gallon drums which will be staged in secondary containment pans. This waste stream is characterized as LLM based on process knowledge. The wash water will be sampled and analyzed in accordance with the sampling and analysis plan. The sample results will be compared with the WAC for Unit 374.3 where the waste is to be treated.

Radioactive and hazardous waste may only be generated and packaged by waste generator qualified personnel. Waste packages must conform to the particular WGI for that waste stream. After the waste is packaged, final documentation will be prepared and packages inspected before shipments leave the Building 788 area. Radioactive waste packages will have the package activity calculated by Radiological Engineering. A radioactive waste variance has been received to utilize a full time Waste Inspector in lieu of sending waste packages to Real Time Radiography (RTR). The project then transfers the waste to Solid Waste Operations for storage, certification, and offsite disposal. Recyclable and Industrial Sanitary Waste may be taken directly offsite under the direction of Waste Operations personnel and the Waste

Coordinator. The following sections describe the types of waste that will be generated for each phase of the project.

3.1 BUILDING STRIP-OUT

Activities during this phase will include the removal of any leftover equipment and material from Building 788, radiological decontamination if required, and removal of miscellaneous debris from around the SEP. Types of waste that will be generated during strip-out include LLW, LLM, Hazardous (HAZ), Non-Regulated (NON), recycle, and material to be dispositioned by PU&D. Qualified waste generators will work with the Waste Coordinator and Radiological Technicians to identify and segregate LLW waste from both LLM and HAZ waste. Metal waste will be separated from non-metallic items and managed as recyclable material. The description of each waste type and individual waste streams are discussed below.

LLW IDC's that will be generated during stripout include 861 and 5001. IDC 861 will consist of dry combustibles such as wood pallets, benches, personnel protective equipment (PPE), and other miscellaneous combustible items that did not come into contact with RCRA listed waste (SEP water or sludge). IDC 5001 SCO will consist of hoses and miscellaneous plastic, metal, and other non-porous waste items that did not come into contact with RCRA listed waste (SEP water or sludge). Metal items will include only those that can not be recycled, such as copper or aluminum, or that have a large percentage of non-metallic parts associated with it.

LLM IDC's that will be generated during stripout include 851 and 5001. This waste will carry the RCRA hazardous waste codes of F001, F002, F005, F006, F007, and F009. This is consistent with Pondsludge characterization without the characteristic code for Cadmium (D006), which would not be applicable to this waste. This waste is considered mixed under of the Contained-In Rule, because listed waste has come in direct contact with debris' surface. IDC 851 will consist of dry combustibles, such as wood stairs and other miscellaneous combustible items that have been in contact with RCRA listed waste (SEP water or sludge). IDC 5001 SCO will consist of rubber hoses and other miscellaneous items used to transfer and cleanup SEP water and sludge. Residual dried sludge will be left in the hoses and packed as LLM. Hoses may be cut open and treated to the alternative debris treatment standards at the decontamination pad to become LLW.

HAZ waste expected to be generated during stripout activities includes WFC 1529, 1928, 1937 and 1938. WFC 1529 will consist of gasoline that is drained from pumps and equipment around the Solar Ponds. This waste will carry the EPA Codes of D001 (ignitable) and D018 (Benzene). WFC 1928 is fluorescent light tubes that will be removed from the office rooms in Building 788 and will carry EPA Code D009 (Mercury). WFC 1937 is Mercury / Sodium vapor lamps in Building 788. These bulbs carry EPA codes D008 (Lead) and D009. WFC 1938 is incandescent light bulbs that are in miscellaneous light fixtures, and will carry EPA Code D009.

Toxic Substance Control Act (TSCA) waste streams that may be generated are WFC 1973 which are light ballasts that contain PCB's. Due to the date of construction of Building 788 it is not expected that there will be light ballasts containing PCB's.

NON waste will consist of WFC's 1950, 1951, 1971, and 1980. WFC 1950 will consist of oil and hydraulic fluid removed from equipment in the SEP area. This "USED OIL" will be non-hazardous by process knowledge. WFC 1951 will consist of coolants such as ethylene glycol.

removed from pieces of equipment. Fingerprint and gross alpha/beta analysis will be performed on these liquids. WFC 1971 will consist of non-PCB light ballasts removed from light fixtures in Building 788. WFC 1980 will consist of alkaline and carbon-zinc batteries removed from lights and instruments.

Recycle waste streams that will be generated are 1542 and 1980. WFC 1542 will consist of freon that is recovered from the refrigerator in Building 788 by Site maintenance personnel. WFC 1980 will consist of lead acid batteries that are removed from forklifts.

Recycle scrap metal going to metal melt includes IDC 480. The metal is potentially radioactively contaminated and consists of piping, pumps, fittings, tools, and other miscellaneous metal items. It does not include copper, aluminum, or other items that have a large percentage of non-metallic parts associated with it.

Reusable items that will be transferred to PU&D for dispositioning include transformers, chargers, heaters, a generator, lighting, lockers, and office and computer equipment.

3.2 ASBESTOS ABATEMENT

Asbestos abatement will occur either concurrently or immediately following strip-out activities. During this phase of the project, non-friable Asbestos Containing Material (ACM) will be removed from the T788A porch prior to the trailer being removed from the Building Cluster area. Asbestos waste that is low-level in nature will be generated. The asbestos that has been identified includes brown tar in the roof shingles (approximately 100 square feet) from the porches on the East side of T788A.

IDC 438 will be generated and consists of roofing material with non-friable asbestos. The roofing material will be removed with the plywood base intact, and may have to be size reduced to fit into a wood or metal box. Waste will also include PPE worn during abatement. ACM workers must be trained to Colorado Regulation #8. Training and Certification. It has been determined that all of the asbestos waste will be classified as low-level asbestos waste.

3.3 DEMOLITION

The demolition phase includes removal of the Building 788 shell, clarifier tank and shed, Building 308A pump house, and other equipment and structures associated with Treatment Unit 48. Types of waste that will be generated during demolition include LLW, LLM, industrial sanitary, and recyclable metal. A description of each waste type and individual waste streams are discussed below.

LLW IDCs include 861, 374, and 5001. IDC 861 will consist of the wood Clarifier shed, PPE and other miscellaneous combustible items that did not come into contact with RCRA listed waste (SEP water or sludge). IDC 374 will consist of concrete removed from above ground portions of foundations. If the concrete was part of RCRA Units 21 or 48 it will be certified closed before it is removed. IDC 5001 is SCO waste comprising of rubber and plastic items and non-recyclable metal items such as copper or aluminum, or metal with a large percentage of associated non-metallic parts. LLM IDCs include 505 and 5001. This waste will carry the RCRA hazardous waste codes of F001, F002, F005, F006, F007, and F009. This is consistent with Pondslludge characterization without the characteristic code for Cadmium (D006),

which would not be applicable to this waste. This waste is considered mixed under the Contained-In Rule, because listed waste has come in direct contact with debris' surface. IDC 5001 may consist of plastic, rubber, or metal items associated with Treatment Unit 48 that can not go to metal melt. IDC 505 will be wash water generated during RCRA Closure activities such as decontamination and sampling of the remaining slabs.

Industrial Sanitary waste consists of WFC 1920, primarily consisting of fiberglass insulation in Building 788 between the inner and outer layers of the walls and roof.

Recycle metals going to metal melt includes IDC 480. These metals are potentially radioactively contaminated and consist of the walls and roof of Building 788, Building 380A, the clarifier tank, pug-mill, piping, pumps, and other miscellaneous metal items.

A summary of waste types generated, onsite storage facility, final disposition, and the volume estimated to be generated is listed below in Table 1. These estimated volumes may differ from actual volumes due to completion of additional characterization and the selection of waste management treatment options.

Table 1: Estimate of waste to be generated from the Building 788 Cluster.

Waste Stream	Packaging and Onsite Storage	Final Disposition	Estimated Generated Volume
Low Level Asbestos (brown tar in roofing shingles) Non-Friable	Wood or Metal Box, Building 664 Cargos	Nevada Test Site	3 m ³ 1 full box
Low Level Waste (wood, plastic, cement, metal)	Wood or Metal Boxes, Building 664 Cargos	Nevada Test Site	76 m ³ 24 full boxes
Low Level Mixed Waste (concrete, plastic, wood, rubber, metal)	Wood or Metal Boxes, Unit 14, or Building 906	Envirocare of Utah, Inc.	16 m ³ 5 full boxes
Low Level Mixed Waste (wash water or rinsate)	White 55 gallon drums, Building 374 Liquid Waste Operations	Building 374 Liquid Waste Operations wastewater treatment unit.	0-5,000 gallons
Hazardous Waste (light bulbs, batteries)	Cardboard Boxes, 90 day unit 569-2210	Chemical Waste Management, Inc.	<1 m ³
Non-Regulated Waste (light ballasts, batteries)	Grey 55 gallon drums, Unit 5001	Chemical Waste Management, Inc.	<1 m ³
Waste Stream	Packaging and Onsite Storage	Final Disposition	Estimated Generated Volume

Hazardous Waste Liquids (gasoline)	black and white 55 gallon drums, 90 day unit 569-2210	Chemical Waste Management, Inc.	50 gallons
Non-Hazardous Liquid Waste (oil, hydraulic fluid, ethylene glycol)	Green 55 gallon drums, Unit 5001	Chemical Waste Management, Inc.	150 gallons
Industrial Sanitary Waste (insulation, metal, plastic)	Rolloffs	Front Range Landfill, Inc. Erie, Colorado	69m ³ 4,200 lbs 3 rolloffs
Reuse at PU&D (various pieces of equipment)	As is, or on pallets, PU&D	Reuse	15 m ³
Recycle Material (lead acid batteries)	On pallets, Unit 5001	Resource Plastics Inc. (Gopher)	<1 yd ³
Radioactive Scrap Metal for Recycle (all metal items in the cluster)	Sealand Cargos	GTS Duratek, Beaver Creek Operations, Oakridge, Tenn.	122m ³ 150,000 lbs 8 sealand cargos

4.0 WASTE TYPES

This section provides information on the different waste types generated by the project, and how each waste type will be managed.

4.1 LOW-LEVEL WASTE

Low-level radioactive waste is defined as being contaminated with transuranic elements (i.e. Americium and Plutonium) at a level of specific activity less than 100 nCi per gram of waste material, or wastes contaminated with non-fissile Uranium in any quantity. Fissile isotopes of Uranium (²³³U, ²³⁵U) are limited to less than 15g per package. Historical information (analytical data) suggests that all of the radioactive waste produced as a result of the Building 788 Cluster RCRA Closure activities will be low-level in nature.

LLW will be shipped off-site in accordance with DOT regulations as either SCO or LSA category material. The Radiological Characterization for Surface Contaminated Objects procedure (PRO-267-RSP-09.05) will be used to make the radiological evaluation whether a waste is SCO or LSA. Porous material such as wood, concrete and PPE will be shipped as LSA waste. Non-porous waste material such as metal, plastic, and rubber will be shipped as SCO waste. SCO waste will be packaged into wood boxes. LSA waste will be packaged into wood boxes if activity is estimated to be below the A₂ value, or IP-2 metal boxes if above the A₂ value.

LSA and SCO waste will not be sent to the non-destructive assay (NDA) counter at Building 569. The SEP area is not a Material Accountability Area (MAA), and the waste is non-accountable material. Radiological Engineering will provide the documentation for the radioactive characterization of waste generated by the project. LSA package activity will be determined by weight based calculations that consider waste matrix, isotopic blend, and

existing gross alpha/beta analysis. SCO package activity will be determined from weight based calculations derived from surface area and removable & fixed contamination surveys. A Radioactive Waste Variance (98-30) has been granted to exempt packages from going to RTR when a Waste Inspector is present during all packaging operations.

LLW will be generated, packaged and managed in compliance with the Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001), Solid Radioactive Waste Packaging Requirements (1-M12-WO-4034), and Solid Radioactive Waste Packaging (4-D99-WO-1100), with all required documentation. Radiological Technicians will perform the required surveys on the packages, and the Waste Inspector and CSO will perform inspections before transfer to Waste Operations for storage and disposal.

Radioactive waste packages will be staged outside in a Radioactive Material Area (RMA) to the North of 207C Pond. Empty and full boxes will be limited to groups of no more than ten, elevated off the ground, and covered with fire retardant tarps. Full boxes will be transferred from the SEP area in an expedient manner to reduce exposure to the elements. Surveillance will be conducted at least weekly on the boxes. LLW that results from RCRA Closure activities will be stored onsite, or when appropriate, shipped directly to an approved offsite disposal facility.

4.2 HAZARDOUS WASTE

A hazardous waste is defined as waste that exhibits certain characteristics or is listed in 40 CFR 261 or the Code of Colorado Regulations (CCR), 6 CCR 1007-3, Colorado Hazardous Waste Regulations. All hazardous waste generated during this project will be managed in accordance with the Colorado Hazardous Waste Regulations 6 CCR 1007-3, and will be staged, managed, and inspected in a 90 day area after generation and packaging.

Hazardous chemicals were disposed of by Solid Waste Operations prior to the Building Cluster transition to RCRA Closure, and as a result, discovery of hazardous chemical waste is unlikely. All hazardous waste will be managed in compliance with the Hazardous Waste Requirements Manual (1-10000-HWR), and Non-Radioactive Waste Packaging 1-C88-WP-1027-NONRAD), and the Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001)

HAZ waste must be properly packaged, labeled, and the required documentation generated. A P/WRE must be received from Radiological Engineering for this waste stream. All packages of hazardous waste will be inspected by CSO before they are transferred to Waste Operations for storage in a RCRA permitted unit prior to disposal. Hazardous waste will not require a Waste Inspector to certify the waste. Any items or debris contaminated with or containing hazardous waste must be managed as hazardous waste.

4.3 MIXED WASTE

A mixed waste is classified as a hazardous waste that has been mixed with radioactive waste. All mixed waste generated during this project will be managed in accordance with the Colorado Hazardous Waste Regulations 6 CCR 1007-3, and will be staged, managed and inspected in a 90 day area and a RMA after generation and packaging. LLM waste from

the project will not be compliant to RCRA Land Disposal Restrictions (LDR). This waste will not meet the universal treatment standards for Cadmium, which is consistent for SEP sludge debris waste generated during past activities.

LLM will be shipped in accordance with DOT regulations as either SCO or LSA category material. The Radiological Characterization for Surface Contaminated Objects procedure (PRO-267-RSP-09.05) will be used to make the radiological evaluation whether a waste is SCO or LSA. Porous material such as wood and PPE will be shipped as LSA waste. Non-porous waste material such as metal, plastic, and rubber will be shipped as SCO waste. SCO waste will be packaged into wood boxes. LSA waste will be packaged into wood boxes if activity is estimated to be below the A_2 value, or IP-2 metal boxes if above the A_2 value.

LSA and SCO waste will not be sent to the non-destructive assay (NDA) counter at Building 569. The SEP area is not a Material Accountability Area (MAA), and the waste is non-accountable material. Radiological Engineering will provide the documentation for the radioactive characterization of waste generated by the project. LSA waste package activity will be determined by weight based calculations that consider waste matrix, isotopic blend, and existing gross alpha/beta analysis. SCO waste package activity will be determined from weight based calculations derived from surface area and removable & fixed contamination surveys. A Radioactive Waste Variance (98-30) has been granted to exempt packages from going to RTR when a Waste Inspector is present during all packaging operations.

LLM waste will be generated, packaged and managed in compliance with the Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001), Hazardous Waste Requirements Manual (1-10000-HWR), Solid Radioactive Waste Packaging Requirements (1-M12-WO-4034), and Solid Radioactive Waste Packaging (4-D99-WO-1100), with all required documentation. Sludge removed from hoses will be packaged by guidance from a packaging aid written by the CSO. Radiological Technicians will perform the required surveys on the packages and the Waste Inspector and CSO will perform inspections before they are transferred to Waste Operations for storage and subsequent disposal.

LLM packages will be staged in a 90 day area that is also a RMA outside to the North of 207C Pond. Empty and full boxes will be limited to groups of no more than ten, elevated off the ground, and covered with fire retardant tarps. Full boxes will be transferred expeditiously from the SEP area to reduce exposure to the elements. RCRA inspections and surveillance will be conducted at least weekly. LLM that results from RCRA Closure activities will be stored onsite or when appropriate, shipped directly to an approved offsite disposal facility.

LLM waste items that are plastic, metal, or rubber (hoses) may be treated to the alternative treatment standards for hazardous debris by physical extraction (waterspray). The resultant waste will be considered LLW and not LLM if it meets the "clean surface debris standards". All wash water and rinsate generated during RCRA Closure activities will be treated as mixed waste at Building 374.

4.4 INDUSTRIAL SANITARY WASTE

Industrial Sanitary waste is waste that meets industrial sanitary landfill requirements. Industrial Sanitary waste is not hazardous, not radioactively contaminated, and does not contain

asbestos, PCBs or other prohibited items. A PWRE must be received from Radiological Engineering for this waste stream.

The subcontractor will follow the procedure Sanitary Waste Offsite Disposal. (1-PRO-573-SWODP), which describes the method for preparing and shipping the waste, and lists the items prohibited from being packaged. It will be the responsibility of the subcontractor, with monitoring by the Waste Coordinator, to comply with this procedure. This waste will be loaded into a roll-off for disposal at Front Range Landfill. Front Range Landfill will provide safe transportation of the waste to the landfill. Traffic Management will prepare the Bills of Lading for the shipments. Sanitary Waste Programs personnel will inspect and coordinate these shipments.

4.5 TOXIC SUBSTANCE CONTROL ACT (TSCA) WASTE

Non-radioactive contaminated PCB waste may be produced from the removal of ballasts from light fixtures. This waste will be generated, packaged, and managed in compliance with the TSCA Management Plan (1-10000-EWQA), Non-Radioactive Waste Packaging (1-C88-WP-1027-NONRAD), and the Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001). Ballasts must be properly packaged in drums, labeled, and the required documentation generated. Non-leaking PCB ballasts will be stored for less than 30 days in the SEP area. A PWRE must be received from Radiological Engineering for this waste stream. Packages of TSCA waste will be inspected by CSO before they are transferred to Waste Operations for storage and disposal. TSCA waste will not require a Waste Inspector to certify the waste. The Waste Disposal group will then be responsible for coordinating offsite shipment and disposal.

4.6 ASBESTOS WASTE

The asbestos containing waste material generated during the RCRA Closure of Building 788 Cluster will be roof shingles from T788A porches. The brown tar has been determined to be non-friable ACM. A permit will be obtained from CDPHE to remove the asbestos waste. Radiological Engineering has determined this waste will be LLW.

Low level asbestos waste will be shipped in accordance with DOT regulations as LSA category material. LSA waste will not be sent to the non-destructive assay (NDA) counter at Building 569. The SEP area is not a Material Accountability Area (MAA), and the waste is non-accountable material. Radiological Engineering will provide the documentation for radioactive characterization, which will be determined by weight based calculations that consider waste matrix, isotopic blend, and gross alpha/beta analysis. This waste will be packaged into a wood box if its activity is estimated to be below the A_2 value, or an IP-2 metal box if above the A_2 value. A Radioactive Waste Variance (98-30) has been granted to exempt packages from going to RTR when a Waste Inspector is present during all packaging operations.

Asbestos containing materials will be generated, packaged, and managed in accordance with the Colorado Air Quality Control Commission Regulation 8, Occupational Safety and Health Agency (OSHA); Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001), Solid Radioactive Waste Packaging Requirements (1-M12-WO-4034), and Solid Radioactive Waste Packaging (4-D99-WO-1100).

The AE/C/CM or RMRS will provide the waste generators for packaging. A Waste Inspector will be present to provide In-Process inspection of this waste. The waste generators will then package and label the waste according to the WGI. The Waste Coordinator will ensure all required documentation is completed. Radiological Technicians will perform the required surveys on the packages and the Waste Inspector and CSO will perform inspections before they are transferred to Waste Operations for storage and disposal.

4.7 NON-REGULATED WASTE

Non-Regulated waste is defined as a waste that does not exhibit hazardous characteristics or that is not listed in 40 CFR 261 or the Code of Colorado Regulations (CCR), 6 CCR 1007-3, Colorado Hazardous Waste Regulations, and is not radioactively contaminated. A P/WRE will be provided by Radiological Engineering for this waste stream. Solid non-hazardous waste will be generated, packaged and managed to the Waste Characterization, Generation and Packaging Procedure (1-PRO-079-WGI-001), and Non-Radioactive Waste Packaging (1-C88-WP-1027-NONRAD). The Waste Coordinator will ensure all required documentation is completed. CSO will perform the required inspections on the paperwork and packages. Waste will then be transferred to the appropriate Waste Operations storage unit.

Liquid non-hazardous waste will be managed in much the same way as solid non-hazardous waste, with the exception that the liquid will be sampled for fingerprint analysis and radioactive screening to verify characterization. It is assumed these liquids are non-hazardous and non-radioactive in nature due to their being collected from a closed system, and did not come into contact with hazardous or radioactive materials. Once the characterization is verified with analytical results, the drums will be transferred to the appropriate Waste Operations storage unit.

4.8 PROPERTY UTILIZATION AND DISPOSAL MATERIALS

PU&D materials, as defined in this WMP, are those materials that have been accepted for storage and reuse by PU&D. These materials include, but are not limited to selective pieces of equipment which are located in non-contaminated areas or have been located in contaminated areas and confirmed as non-contaminated through radiological survey. Material going to PU&D must be dispositioned according to the Property Management Manual, Chapter V, Section 5.3.3, Economic Disposal Plan. Items going for reuse will be coordinated with the PU&D organization. A P/WRE will be required for all items. All capital equipment / property will be properly accounted for and dispositioned.

4.9 RECYCLE MATERIAL

Potentially radioactive contaminated metal items will be segregated, size reduced and shipped to the GTS Duratek metal melt facility as recyclable material. Metal items that would be considered mixed waste under the Colorado Hazardous Waste regulations are exempt if recycled. They will be combined with straight low level items and sent to the metal melt facility. Survey units will provide the documentation for radioactive characterization. Recycled metal will be shipped as a Limited Quantity, SCO I, or SCO II for the DOT shipping classification depending upon calculated activity of the package.

The metal will be packaged into sealand cargos provided by the metal melt facility under the

guidance of the Waste Disposal group. Most non-metallic pieces will be segregated from the metal, although small incidental non-metallic pieces will be acceptable. If items have larger non-metallic pieces that are not considered incidental, then a letter will be given certifying that it is not a hazardous waste. A dynamometer will be used when loading the sealands to ensure weight limits are not exceeded. Waste Acceptance Guidelines (WM-ADM-I-101) will be followed when packaging the recycle metal.

Lead acid batteries are exempt from the Colorado Hazardous Waste Regulations because they are recyclable. When removed from equipment they will be surveyed as directed by a P/WRE, and the leads will be shielded with tape before they are banded to a pallet. The Waste Coordinator will ensure all documentation is completed. The pallet will then be transferred to Waste Operations storage unit 5001 for disposal at a recycle facility.

5.0 WASTE PACKAGING

All waste types generated by the project will be sorted at the time of removal. The waste will be staged for size reduction, or treated to debris standards before packaging. Radioactive waste will be surveyed as part of a survey unit to determine the level of radioactive contamination on its surface. SCO waste will be logged onto the SCO worksheet with an estimate of each items surface area. Waste will only be packaged into DOT approved packages specified on the appropriate WGI or packaging aid, and ordered through CSO at the warehouse. Full size wood or metal boxes will be used for packaging most LLW and LLM waste. Metal boxes will be used if the package activity is greater than the A_2 value, if wood boxes are unavailable, or if restrictions or

circumstances dictate the use of metal boxes. Small quantities of LLW may be packaged in 55 gallon drums, as will LLM wash water and rinsate. Drums or boxes will be used for Non-Regulated and TSCA waste. Packages do not require Tamper Indicating Devices (TID) applied because they do not contain classified material, or come from a MAA. Closed packages of radioactive waste will be weighed and the results given to Radiological Engineering for calculation of package activity.

Waste / Residue Travelers will be completed for each package of waste generated by the project in accordance with procedure (1-C80-WO-1102-WRT). All sections will be completed by the waste generator or signed off by the applicable discipline. The Traveler will contain a copy of the Waste Environmental Management System (WEMS) container accuracy report, and the WSRIC waste stream sheet. Radioactive packages will have the dock inspection and a copy of waste variance 98-30. Non-radioactive packages will have a copy of the P/WRE. WEMS will be updated with the waste package status as changes occur, per Controls for Updating Waste Package Information in WEMS (1-PRO-Q11-WO-1221). All fields including the radioassay results and radiation protection measurements will be completed.

Recycle metal destined for the metal melt facility will be packaged into sealand cargos provided by GTS Duratek. Cranes may be required to assist in the loading of heavy items into the open tops of the sealand. The metal will be packaged to Waste Acceptance Guidelines (WM-ADM-I-101) from the GTS Duratek Bear Creek Operations in Oak Ridge, Tennessee. Sealand information will be entered into WEMS to track the quantity of metal for recycle.

Industrial Sanitary waste may be placed in rolloffs under the guidance of the Sanitary Waste Program. These rolloffs are provided by Front Range Landfill. Only waste that meets the WAC outlined in the Sanitary Waste Offsite Disposal Procedure (1-PRO-573-SWODP) will be packaged. Additional items may be placed onto pallets for transfer to PU&D. Liquid rinsate collected from treatment and closure activities will be collected into 55 gallon drums and sent to the onsite treatment facility at Building 374.

6.0 WASTE CERTIFICATION

Independent Waste Certification activities will be conducted by trained personnel assigned to the project (Waste Inspector), and by the Waste Certification and Oversight (WCO) group. The Waste Inspector will conduct In-Process Waste Inspections to procedure (4-H62-WI-4011), and Dock Inspections to procedure (4-I82-WI-4012). WCO certifies that radioactive wastes are properly segregated and packaged based on a thorough review of inspection, test, and surveillance information. The WCO group will perform the Final and Loading Inspection for Packages to procedure (4-M63-WI-4013). The Waste Characterization data and packaging requirements for low-level waste will meet the requirements of the Nevada Test Site's Waste Acceptance Criteria (NTSWAC, Rev. 1 8/97). WCO certifies that the LLW meets all applicable waste acceptance criteria for disposal and DOE, EPA, and DOT requirements.

Release of non-hazardous material, debris, and equipment from a site contaminated with hazardous materials is accomplished by demonstrating that the materials or wastes do not exhibit any of the characteristics of hazardous waste as identified in Subpart C of 6 CCR 1007-3 SS261 or from Subpart D. Process knowledge and operating history related to the facilities can also be used to segregate hazardous contaminant areas from unaffected areas.

The D&D WSRIC book will be used to document waste characterization during D&D activities in the Building 788 Cluster. This book describes the waste streams and provides characterization information, and is controlled by the WSRIC Characterization and Reverification procedure (4-H19-WSRIC-001). At the completion of this project, the Building 788 WSRIC book will be revised to include Process 2, which will contain information on all waste generated during this project. The Building 788 WSRIC book will be archived after this information is added.

7.0 ONSITE STORAGE, TRANSPORTATION, AND FINAL DISPOSITION

HAZ and LLM will be temporarily staged in RCRA 90 day area 788-2482. A Non Regulated Area will be established to store other project waste. All storage areas associated with the Building 788 Cluster will be closed when all waste has left the SEP area. This will include the closure of RCRA Units 21 and 48.

Wastes not shipped directly offsite will be relocated to an appropriate onsite storage unit. Waste Operations will designate the appropriate storage location for this waste. Waste Operations personnel will provide site surveillance support to ensure that hazardous and mixed wastes are being managed in accordance with the conditions established in the current Site RCRA Permit. With proper approvals, it may be possible to ship the waste directly offsite. Recycle metal and Industrial Sanitary waste will be shipped from the project directly offsite.

The Project Team, Waste Disposal Projects, and Traffic Management will be responsible for assuring the requirements for offsite transportation of waste to an approved DOE vendor are met. This includes complying with DOT regulations, the Rocky Flats Transportation Safety Manuals, and the WGI, which summarizes all relevant Site waste packaging procedure requirements.

8.0 WASTE MINIMIZATION

The philosophy of waste minimization will be utilized in the planning and management of project generated wastes. Standard decontamination operations and debris treatment processes will be evaluated to determine if the minimization of LLM waste will be implemented. The reduction of LLM waste to straight LLW will generate a significant rinseate volume that requires packaging, analysis and disposal. A cost benefit analysis is being developed to determine if the cost to free release waste is greater than the cost of disposal as radioactive waste. If the cost is greater to free release, then the waste will be disposed of as low level radioactive contaminated waste.

Opportunities for waste minimization through recycle metal melt will greatly reduce the quantity of waste being generated by the project. Almost all metal items that are generated will be shipped to the GTS Duratek facility and be recycled as a usable product. Lead acid batteries will be recycled at Resources Plastics Inc.

9.0 COMPLETION REPORT / RECORDS

Upon completion of the project, a Project Completion Report will be prepared. This report will include a listing of the wastes removed from the building, characterization data, WSRIC waste stream number, and waste dispositioning information (e.g., size reduction, decontamination, or treatment) which contributed to the final forms and volumes of the wastes resulting from this project.

All records generated as a result of the implementation of this document are identified in the implementing procedure. Project records will be handled in accordance with the RMRS procedure Record Identification, Generation, and Transmittal, RM-06.02. Original data used for characterization is stored in the Kaiser-Hill Analytical Services Division Records Repository under Report Identification Number 99A3190. Additional results were also uploaded into the Site Soil & Water Database for digital archival and data management purposes. Uploaded data were subsequently checked for accuracy (QC) by the RMRS Sample Manager. All other data acquired that support this report will be archived in the RMRS Project File, following peer review and under the auspices of the Project Manager, and will ultimately be submitted to the RMRS Records Center for permanent storage and retrieval.

10.0 REFERENCES

1-10000-HWR, Hazardous Waste Requirements Manual
1-PRO-079-WGI-001, Waste Characterization, Generation and Packaging
1-PRO-573-SWODP, Sanitary Waste Offsite Disposal
1-C88-WP1027-NONRAD, Non-Radioactive Waste Packaging
PRO-267-RSP-09.05, Radiological Characterization for Surface Contaminated Object
1-M12-WO4034, Radioactive Waste Packaging Requirements

4-D99-WO1100, Solid Radioactive Waste Packaging
1-10000-EWQA, TSCA Management Plan
1-C80-WO1102-WRT, Waste/Residue Traveler Instructions
1-PRO-Q11-WO-1221 Controls for Updating Waste Package Information in WEMS
4-H62-WI-4011 In-Process Waste Inspections
4-I82-WI-4012 Dock Inspections
4-M63-WI-4013 Final and Loading Inspection for Packages
4-H19-WSRIC-001 WSRIC Characterization and Reverification
RM-06.02 Record Identification, Generation, and Transmittal
WM-ADM-I-101 GTS Duratek Waste Acceptance Criteria
Nevada Test Site's Waste Acceptance Criteria (NTSWAC, Rev. 1, 8/97)
RCRA Part B Permit
6-CCR 1007-3 Colorado Hazardous Waste Regulations
Colorado Regulation 8
Property Management Manual
Rocky Flats Transportation Safety Manuals
D&D Waste Stream and Residue Identification and Characterization
DOE - Decommissioning Resource Manual
Building 788 RCRA Closure Description Document RF/RMRS-98-288
Building 788 Site Hazard Assessment Plan RF/RMRS-98-249

Attachment 5
Closure Description Document

RF/RMRS-98-288

**Closure Description Document
for
RCRA Units 21 and 48**

**U. S. Department of Energy
Rocky Flats Environmental Technology Site**

January, 1999


Reviewed for Classification
1/15/99
Date

CLOSURE DESCRIPTION DOCUMENT
FOR RCRA UNITS 21 AND 48

REVISION 0

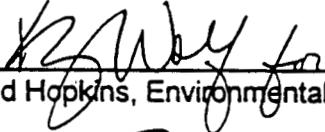
January, 1999

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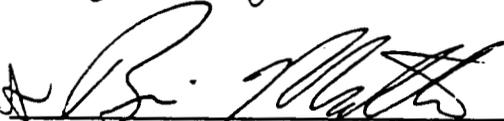
Vern Guthrie, Project Manager

1/15/99
Date



Ted Hopkins, Environmental Compliance Manager

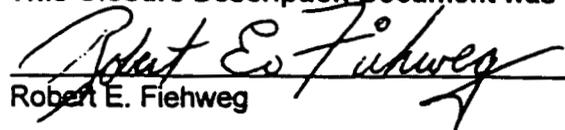
1/15/99
Date



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1/15/99
Date

This Closure Description Document was prepared by:



Robert E. Fiehweg

1/15/99
Date

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Table 4-1 Associated EPA Waste Codes And Contaminants Of Concern

Table 7-1 Summary of Waste Sources And Estimated Waste Volumes

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1.0 INTRODUCTION

This Closure Description Document (CDD) describes the activities that will be completed in order to achieve complete closure of Resource Conservation and Recovery Act (RCRA) units in accordance with the closure plans contained in Part X of the Rocky Flats Environmental Technology Site (RFETS) RCRA Part B Permit (Permit Number CO-97-05-30-01) and the *Closure Plan for Interim Status Units at the RFETS - August, 1997* (together "the Closure Plans"). Unit 21 is a permitted storage unit located in Building 788. Unit 48 is an interim status unit comprising the pondcrete solidification process equipment located in the area of Building 788, which includes the clarifier tank system. Both units are associated with the former Operable Unit 4, the Solar Evaporation Ponds, currently identified as a corrective action area within the Industrial Area. The closure activities described in this document are not part of any future corrective actions which will address contamination in the solar ponds area.

In 1997, the Department of Energy (DOE), Kaiser-Hill Company L.L.C. (K-H), and the Colorado Department of Public Health and Environment (CDPHE) entered into an Order on Consent (97-08-21-01) which required, *inter alia*, that DOE and K-H implement the 1997 Tank Management Plan (the Plan). Pursuant to the Plan, the clarifier tank system must be clean closed and removed by June 30, 1999. The closure described herein will allow the Site to meet this commitment. The scope of the closure project includes the segregation, management and disposal of waste and debris, removal of the building to the concrete slabs and minor curbs and pads, and certification of the closure.

The Closure Plans allow for closure decontamination by three methodologies. Closure will be accomplished by one or more of the following methods: (1.) removing all waste (Waste Inventory Removal); (2.) decontaminating equipment and structures by an approved method to achieve closure performance standards; or (3.) cleaning material to meet "debris rule" standards. A fourth method, allowed by regulation, is the recycling of metal as scrap metal. These options are described in Section 5.0.

Although the activities described in this document include the demolition of a building, which essentially results in a facility decommissioning governed by the Rocky Flats Cleanup Agreement (RFCA), RFCA paragraphs 96 and 97 provide that remedial work can be conducted as a RCRA closure rather than a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) accelerated action where appropriate. In this case it is appropriate because these facilities comprise RCRA units.

1.1 SCOPE OF CLOSURE PROJECT

The Building 788 Cluster Closure project includes Building 788 (B788), trailer T788A, the clarifier tank, Building 308A, and miscellaneous structures, equipment and debris in the immediate vicinity (see Table 7-1 for detailed description of closure activities). All of the equipment and materials were associated with either the production and processing of pondcrete in Unit 48 or the storage of pondcrete in Unit 21. In general, the project will begin with property and waste management and removal, followed by decontamination, as necessary, and finally building demolition. Wastes removed from the units will be managed and disposed of as described in the project's Waste Management Plan (see Section 1.3 below).

Closure of RCRA Unit 48 entails removal of the clarifier tank, including the surrounding woodshed and ancillary equipment, such as piping, pumps, and an air compressor. Only the concrete slab and minor curbs and pads will remain in place. Associated equipment and structures including the pug mill, steel rack, sludge transfer equipment (e.g. pumps), and timber will be removed. Ancillary equipment on the northwest side of B788 will also be removed.

Building 788 will be dismantled down to the slab. All utilities services will be disconnected and isolated, and abandoned or interfering utility poles will be removed. The T788A support trailer will be relocated to another location within the Protected Area for use on other projects. Protruding concrete stem walls and foundations on both the north and south side of B788 will be removed to the extent practical. Project activities will not disturb any soil around the building, except in an incidental manner such as impressions from heavy materials or equipment resting on and compressing the soil. Property meeting the radiological free release criteria and with no hazardous contamination will be transferred to Property Utilization and

Disposal (PU&D). Radioactively contaminated metals will be recycled wherever possible; non-recyclable material will be managed and disposed of as waste. Waste containers, if any, will be removed from the building, the remaining slab will be washed and RCRA Unit 21 will be closed.

1.2 HAZARDS AND DEMOLITION

Closure activities present several types of hazards to workers and the environment. Precautions are taken at every stage of the project to prevent harm to human health or the environment, and prior to any work, project personnel ensure that proper safety controls are in place and that all prerequisites are complete. Three key elements of hazard elimination are the health and safety requirements, the Site Hazard Assessment process and the planning of demolition.

A Health and Safety Plan (HSP) is required for all project work conducted at RFETS. The HSP follows OSHA guidelines in the identification of proper health and safety practices for the protection of workers. As described in the Closure Plans, actual numbers of personnel required for the closure will be determined at the time of closure based on the closure schedule, safety, and regulatory standards. Personnel involved in the closure will be qualified in accordance with Part IX of the permit, and will be trained in necessary mechanical skills for conducting closure, decontamination techniques, and safety procedures necessary to accomplish closure.

The hazard assessment process involves the development of a Site Hazard Assessment Plan, in which all potential hazards are identified and plans for assessment are described. Assessment activities include sampling the physical structure for such materials as asbestos, hazardous constituents, radioactivity, and polychlorinated biphenyls (PCBs). Results of chemical analysis, field surveys, process knowledge, and other pertinent sources of information are compiled in a Site Hazard Assessment Report, which is used to guide workers in their day-to-day activities. This report also contains the information required by the Contaminant Evaluation provisions of the Closure Plans.

The B788 closure activities involve the demolition of a facility, and will require a demolition permit from the Air Pollution Control Division of the Colorado Department of Public Health and Environment (CDPHE), based on a Project Demolition Plan, prepared and submitted by a qualified and experienced Demolition Subcontractor. The Project Demolition Plan will describe the demolition methodology to be used; selection is based on a number of factors, including the results of the hazard assessment process. All work activities will be performed in accordance with industry standards using common types of mechanical methods and equipment. The demolition subcontractor will minimize environmental impacts using procedures that prevent uncontrolled releases of waste, control storm water run-on and run-off, and minimize fugitive dust. Work activities are coordinated with site environmental organizations to ensure that requisite monitoring is conducted (e.g. event-based surface water monitoring in the B788 sub-basin), and that work activities do not have an ecological impact, such as disturbing migratory birds or potential habitat for the Preble's Meadow Jumping Mouse.

1.3 WASTE MANAGEMENT

A Waste Management Plan (WMP) will be developed for this closure project. The WMP will identify the roles and responsibilities of all individuals involved in waste generation, waste handling and disposal in accordance with the Site's RCRA Part B permit and RFETS procedures. The WMP will assure that the Waste Inventory Removal requirements of the Closure Plans are met. The anticipated types of waste, approximate volumes, and potential disposal options are described in Section 7.0 of this document. Also, in accordance with the Closure Plans (X.B.6.f), waste minimization will be practiced wherever possible. For example, as much material as possible will be recycled as scrap metal, and as little material as possible will be disposed of as low-level mixed waste. Although it is not expected for this project, it is possible that some waste may be encountered for which there are no off-site disposal options. That mixed waste which cannot be disposed of off-site will be managed under the Site Treatment Plan (STP).

2.0 UNIT CLOSURE NOTIFICATION, SCHEDULE, AND CERTIFICATION

The removal and any necessary decontamination of Building 788, the clarifier tank and ancillary equipment (including the 308A pumphouse) will constitute closure of Units 21 and 48. Notification has been submitted to the Director of the CDPHE of the intent to close the process waste system. In accordance with the Closure Plans, all closure activities will be completed within 180 days of the commencement of closure. If additional time is required, the Director will be notified of the additional amount of time required and the reason for the delay. It is anticipated that closure activities will commence early in 1999, and be completed by the June 30, 1999 commitment, well within the 180 day allowance.

3.0 UNIT DESCRIPTIONS

Both Unit 21 and Unit 48 are located in the vicinity of the Solar Evaporation Ponds in the northeast corner of the Protected Area (PA) of RFETS. Pondcrete was treated in Unit 48 and stored in Unit 21.

3.1 RCRA Unit 21

Unit 21 is the pondcrete storage area, Building 788, with a permitted capacity of 44,000 gallons or 200 cubic yards. The building is of metal construction on a concrete slab, 225 feet in length and 20 - 25 feet wide. The boundaries of the unit are all above ground materials and structures within or nearby the footprint of the building.

3.2 RCRA Unit 48

The pondcrete solidification process, process code T04, was conducted in Unit 48. The boundary of the unit is the following equipment: the clarifier tank, pug mill, cement mixer, building 308A, and associated ancillary equipment such as pumps, valves, hoses, and piping.

4.0 CONTAMINANT CHARACTERIZATION

The Closure Plans require that the CDD describe the types of contamination to be addressed, and the methods and media of decontamination. A unit will be considered decontaminated if all visible waste residuals are removed and final rinsates meet the closure performance standard for "priority pollutants (identified as having been managed in the unit) and heavy metals" (X.C.6). The list of priority pollutants and metals is derived from the EPA Waste Codes associated with the units, as described below. Sampling and analysis will be conducted by methods compatible with the contaminants of concern, and analytical procedures will be conducted in accordance with approved laboratory procedures which meet the requirements of SW-846, as required by the Closure Plans.

4.1 EPA WASTE CODES ASSOCIATED WITH RCRA UNITS 21 AND 48 AND CONTAMINANTS OF CONCERN

The following EPA Waste Codes were identified in the RCRA Part A application (February 1997) for Units 21 and 48:

D002, D003, D006, D007, D008, D009, D018, D019, D028, D029, D035, D038, D040, D043, F001, F002, F003, F005, F006, F007, F009

The RCRA Part B permit expanded the list of codes to include:

The following table, Table 4-1, identifies all of the contaminants of concern associated with each of the waste codes listed above. Process knowledge and previous analyses of the materials handled and stored in units 21 and 48 show that some of the contaminants of concern were not found in the waste managed in these units (e.g. pyridine, 2-ethoxyethanol, 2-nitropropane or wastes with the characteristic of ignitability). Therefore, in accordance with the Closure Plans, only those priority pollutants listed in Table 4-1 that are identified as having been managed in these units will be analyzed for in the decontamination process. The record for this closure will include either analysis for each parameter or justification for exclusion.

Table 4-1 Associated EPA Waste Codes And Contaminants Of Concern

EPA Waste Code	Associated Contaminants of Concern
D001	Ignitable
D002	Corrosive
D003	Reactive
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver
D018	Benzene
D019	Carbon Tetrachloride
D028	1,2 Dichloroethane
D029	1,1 Dichloroethylene
D035	Methyl ethyl Ketone
D038	Pyridine
D040	Trichloroethylene
D043	Vinyl Chloride
F001, F002, F003, F005	1,1,1 Trichloroethane
	1,1,2 trichloro-1,2,2 trifluoroethane
	1,1,2 trichloroethane
	Acetone
	Benzene
	Carbon disulfide
	Carbon tetrachloride
	Chlorobenzene
	Cyclohexanone
	Ethyl acetate
	Ethyl benzene
	Ethyl ether
	2-ethoxy ethanol
	Isobutanol
	Methanol
	Methyl ethyl ketone

EPA Waste Code	Associated Contaminants of Concern
F001, F002, F003, F005	Methyl isobutyl ketone
	Methylene chloride
	n-butyl alcohol
	2-nitropropane
	o-dichlorobenzene
	Pyridine
	Tetrachloroethylene
	Toluene
	Trichloroethylene
	Trichlorofluoromethane
F006, F007, F008, F009	Xylene
	Cadmium
	Chromium
	Cyanide, Total
	Cyanide, amenable
	Lead
	Nickel
Silver	

5.0 DECONTAMINATION METHODOLOGIES

In order to achieve complete closure, Units 21 and 48 will be removed completely to the concrete slab, thereby eliminating further maintenance and potential releases of hazardous waste to the environment. The Closure Plans allow for closure decontamination by three methodologies: (1.) decontaminating equipment and structures by an approved method to achieve closure performance standards; (2.) cleaning material to meet "debris rule" standards; or (3.) removing all waste (Waste Inventory Removal). A fourth method, allowed by regulation, is the recycling of metal as scrap metal. These options are described below.

5.1 OPTION 1: DECONTAMINATION OF MATERIAL TO MEET CLOSURE PERFORMANCE STANDARD

If this option is selected for all or part of the materials from these units, closure will consist of removing visible residuals, decontaminating tanks, pipes and ancillary equipment with a solution capable of removing the contaminants of concern and testing the final rinsate to verify the closure performance standard is met. This decontamination will be conducted in accordance with the Closure Plans.

5.1.1 Closure Activities For Decontamination of Material Associated with RCRA Units 21 and 48

Closure activities for decontamination identified in this section include the following:

1. Water containing sodium carbonate and trisodium phosphate will be used as the decontamination solution.
2. Surfaces that may have reasonably been in contact with hazardous wastes, including interior surfaces of tanks, piping, ancillary equipment and secondary containment structures (e.g., the container storage pad in Unit 21), will be washed with the decontamination solution. A final rinse will be conducted on all

washed surfaces, and a representative sample of the final rinsate solution will be collected and analyzed.

3. The final rinsate closure performance standards for internal surfaces of tanks, piping and ancillary equipment set forth in the Closure Plans will be used to evaluate the effectiveness of the decontamination;
4. The final rinsate volume will not exceed 5% of the capacity of the system and the pH of the rinsate shall be between 6 and 9.
5. Items that have been decontaminated and wash/rinse solutions that meet the closure performance standards may be managed as low-level waste (i.e., not subject to RCRA Subtitle C regulation).

5.1.2 Material Disposition

Material successfully decontaminated under this option will be either managed as LLW or as scrap metal as defined at 6 CCR 1007-3, Part 261.6 (a)(3)(iii).

5.2 OPTION 2: WASTE INVENTORY REMOVAL AND WASTE MANAGEMENT

If this option is selected, waste inventory removed from the unit will be managed as RCRA mixed waste. The material will be removed, size reduced, where feasible, and placed into permitted storage on-site until it is shipped to an off-site treatment, storage or disposal facility. Hazardous waste and/or mixed wastes generated from this project will be managed in accordance with applicable state and federal regulations. Waste management activities are described in the Waste Management Plan.

5.3 OPTION 3: "DEBRIS RULE" DECONTAMINATION

If this option is selected for material from RCRA Units 21 and 48, the material will be managed as RCRA hazardous debris in accordance with 6 CCR 1007-3, Part 268.45 and the Closure Plans. This option is applicable to material for which there is no further use or reuse, and which is intended to be discarded.

5.3.1 "Debris Rule" Decontamination Closure Activities

Hazardous debris will be considered decontaminated if the following are met:

1. The material is debris as defined at 6 CCR 1007-3, Part 268.45.
2. A technology as specified in 6 CCR 1007-3, Part 268.45, Table 1 is selected. Extraction or destruction technologies will be selected over immobilization technologies whenever possible. Hazardous debris in Building 788 will be decontaminated using water washing and spraying. Water containing sodium carbonate and trisodium phosphate will be used as the decontamination solution.
3. A volume of rinse water to ensure adequate residence time is used.
4. The debris surface is clean as defined by 6 CCR 1007-3, Part 268.45.

All treatment residuals including rinsates generated from extraction and/or destruction technologies used in closing Building 788 will be characterized and managed accordingly. If the debris closure performance standards are not met, the material will be removed and managed as RCRA mixed waste.

5.4 OPTION 4: SCRAP METAL FROM RCRA UNITS 21 AND 48

The metal from the building will be managed as LLW and is exempted from RCRA as scrap metal. Other qualifying material will also be recycled as RCRA scrap metal.

6.0 CLOSURE ACTIVITIES

Closure activities fall into three categories: (1.) waste inventory removal and closure of unit components; (2.) final closure of the remaining concrete slabs; and (3.) soil contamination evaluation. Closure activities will be implemented to minimize waste and to ensure the protection of human health and the environment. Specific closure activities are summarized in Table 7-1 along with estimates of the volumes of waste anticipated from each activity.

6.1 CLOSURE OF UNIT COMPONENTS

Units 21 and 48 will be closed by removing materials associated with the permitted units, decontaminating as described above, or managing as waste or recyclable scrap metal. These activities will have a duration of approximately 3 to 4 months, or about one half to three quarters of the 180 day closure period. Upon completion of closure activities, the only remains will be the concrete slabs from buildings 788 and 308A, which will be closed as described below. As described in the Closure Plans, the contaminant evaluation will be used to identify the need, degree and process for decontamination. The decontamination step may be eliminated where it is possible to document that there have been no releases or no contact with hazardous wastes.

6.2 CLOSURE OF CONCRETE SLABS

Following the closure of unit components, the remaining concrete slabs will be closed by scrubbing with a machine capable of carrying cleaning solutions and providing brushing action on the floor surfaces. After scrubbing, the solution may be tested for contaminants, or an additional rinsing step (or steps) will be added, and the rinsate will be tested. If the contaminant levels are equal to or less than Tier II Groundwater Action Levels, the slab shall be considered closed. For further confirmation, samples of the remaining concrete may be taken for comparison to Tier I Soil Action Levels. If a Contaminant of Concern (from Table 4-1) is found to be present for which there is no Tier II Groundwater Action Level, a standard will be proposed for approval by CDPHE. In addition to the evaluation for contaminants of concern, the slabs will also be subjected to final radiological surveys.

This activity will have a duration of approximately one month, depending on the levels of contaminants collected in the scrubbing process.

If the performance standard cannot be met, the unit will be deferred to environmental restoration after notifying CDPHE and employing any measures necessary for preventing the release of waste constituents to the environment.

6.3 SOIL CONTAMINATION

Soil contamination will be evaluated as required by the Closure Plans. Any soil contamination discovered during or after the closure of these units will be deferred to environmental restoration for remediation and inclusion in an appropriate decision document. CDPHE will be notified of any soil contamination found during closure activities.

Closure activities may generate a combination of radioactive, hazardous, and mixed wastes. Contaminated metals, clarifier, pipeline, sumps and ancillary equipment are expected to be the major sources of waste. Plastic, tools, personal protective equipment (PPE) and other materials associated with closure will also be a source of waste. Unless more than incidental amounts of hazardous waste comes into direct contact with the surface of the PPE, PPE will be managed as LLW. Waste will be handled by qualified waste management personnel, who will work with decontamination specialists and radiation control technicians to identify and segregate the hazardous/LLM or LLW. Waste packaging technicians will package and label the waste, and will arrange for radioactive waste to be certified. Liquid hazardous or radioactive waste generated after the process waste lines are no longer in service will be collected in drums and shipped to Building 374 for processing. Solid waste in drums or boxes will be managed appropriately.

7.1 ESTIMATE OF WASTE VOLUMES TO BE GENERATED

Table 7-1 describes the removal activities in each of the major areas of Units 21 and 48, the nature and approximate volume of waste that will be generated, and the anticipated categorization of the waste types.

In general, solid and hazardous waste disposition will be by one of the following methods, depending on waste type:

Reusable items will go to PU&D after contamination surveys are conducted.

Free Release Disposal, also called Sanitary Waste or Solid Waste – solid wastes will be sent to an off-site disposal facility (e.g. USA Waste) after contamination surveys.

Free Release Recycle – metal waste found to be free of radioactive contamination will be sent off-site for recycling.

Low level or mixed recycle – low level radioactive or low level mixed metal waste will be sent to an approved facility for remelting and recycling.

Low Level Disposal – low level waste that cannot be recycled will be packaged and shipped to an approved off-site disposal (e.g. Nevada Test Site).

Low Level Mixed Disposal – mixed waste that cannot be recycled or treated to remove hazardous constituents will be packaged and shipped to an approved off-site facility (e.g. Envirocare).

Liquids – washing solutions and rinsates transferred to B374 for treatment.

Table 7 -1 Summary of Waste Sources And Estimated Waste Volumes

Closure Activities and Waste Sources	Estimated Waste Volume	Waste Type
B788 interior surfaces will be decontaminated as necessary, the building will be dismantled, and the concrete slab will remain in place.	Building Metal 100 m ³ Wash water - 2-5,000 gallons	RM, S LLW
Clarifier Tank, and woodshed will be dismantled.	Clarifier metal 50 m ³ Wood 8.0 m ³	RM LLW
The process piping inside B788, around the B788 Complex, and between the Clarifier Tank and Building 788 will be removed.	Process piping 2.0 m ³	RM, LLW LLM

Closure Activities and Waste Sources	Estimated Waste Volume	Waste Type (a)
All electrical services to B788, T788A, Clarifier, pug mill and other equipment will be disconnected. Wiring will be de-terminated at the power source. All wire will be left inside conduits as found. Conduits will be removed to a practical location with the remaining conduits abandoned in place and labeled.	Conduits and wiring 2.0 m ³	RM, LLW
The two power poles at the southwest corner of B788 may have to be removed; if removed power poles will be cut off at grade.	Power poles 4.0 m ³	LLW
The equipment and structures on the southeast side of B788 will be demolished and removed. This includes the pug mill, steel rack, temporary equipment for sludge transfer, forklift, and the concrete/timber ramp. The flexible hose running from the clarifier to the loading station will be removed.	Equipment 25 m ³ Concrete 2.0 m ³ Wood 6.0 m ³ Flexible hose 4.0 m ³	RM, LLM
The protruding concrete stem walls and foundations on the north side of B788 and concrete foundations around B788 (south side) will be removed to the extent practical to facilitate filling and grading the area with soil.	Concrete 4.0 m ³	LLW
The jersey barriers on the south access road to Building 788 will be relocated to PU&D, and the bollards will be removed at grade.		Reuse

(a) LLW = Low Level Waste LLM = Low Level Mixed Waste RM = Recyclable Metal
Reuse = Disposition to PU&D S = Sanitary or solid waste

7.2 WASTE DISPOSITION

As required by the Closure Plans, all wastes will be removed and transferred to another permitted unit or shipped off-site for storage, treatment or disposal. Waste management, handling, transportation and disposal will follow the requirements of the RCRA Part B permit, RFETS procedures, and other requirements. Waste disposition will match the type of waste (LLW, LLM, etc.) with the qualifications of the off-site facility.

8.0 RECORD KEEPING

The following closure documentation will be maintained as part of the Operating Record:

- this Closure Description Document;
- a field logbook indicating the date, number, and type of sampling activities;
- analytical results;
- records of actions taken to decontaminate equipment or structures;
- work control packages developed governing closure activities; and
- documentation that closure was conducted in accordance with the closure plan.

Attachment 6
Plans for Mitigation
Of Potential Problems

Building 788 Cluster RCRA Closure Project Plans for Mitigation of Potential Problems

Potential Problem

Encounter unexpected hazardous material such as Asbestos, Lead, PCB's etc. in places not identified before.

Mitigation Plan

The subcontract award to a construction subcontractor, be that an AE/C/CM or others, shall include the requirement for the subcontractor to provide properly trained and/or State Certified personnel to deal with unexpected hazardous substances such as Asbestos, Lead, PCB's, etc. The requirements for this are given in Division 01010 Section 01700 of the Construction Specifications. The construction subcontractor shall be asked to identify the names of his lower tier subcontractors and to confirm that an agreement exists with these subcontractors in case there is a need.

In the event that such unexpected hazardous substances are encountered, work in the vicinity of the hazard will be stopped immediately and the area cordoned off. Workers will be reassigned to other tasks pending resolution of the situation. Industrial Hygiene and Safety will be contacted immediately and asked to specify special precautions. A Sampling Team will be asked to collect samples of the suspect material, using the original Sampling and Analysis Plan. The samples will be sent to an approved laboratory with the quickest turnaround time. The project team should be aware of which laboratory to go to. If the results come out positive the construction subcontractor will be asked to provide trained/State certified personnel as required in the subcontract to deal with the hazard. The IWCP may need to be revised at this point to include the additional activities. As much as possible the Project Manager will see to it that team continuity is maintained in the project and personnel familiar with the project are asked to perform on these additional tasks. Once the hazardous substance has been disposed of, any special requirements that were put in place due to the incident shall be removed and the project proceed as before.

The Project Manager will keep the Kaiser-Hill (K-H) manager apprised of the situation at all times and he in turn will be expected to keep DOE informed. The PM will assess the impact to cost and schedule based on input from the construction subcontractor and his own information as soon as possible and submit a Baseline Change Proposal (BCP) to Kaiser-Hill to recover such cost and schedule.

Potential Problem

Encounter unexpected radiological contamination.

Mitigation Plan

The subcontract award to a construction subcontractor, be that an AE/C/CM or others, shall include the requirement for the subcontractor to provide workers properly trained to deal with radiological contamination. The requirement for this are given in Division 01010 Section 01700 of the Construction Specifications. The construction subcontractor shall be asked to identify the names of such workers or his lower tier subcontractors and to confirm that an agreement exists with these workers or subcontractors in case there is a need. During the construction activities Radiological Engineering shall continuously monitor the area to ensure a safe working environment. In the event that such unexpected radiological contamination is encountered, work in the vicinity of the

contamination will be stopped immediately and the area cordoned off. Workers will be reassigned to other tasks pending resolution of the situation. Radiological Engineering, with the assistance of RCT's shall monitor the area and identify the source of contamination. Special precautions such as postings, Radiological Work Permits (RWP) and Personal Protection Equipment (PPE) requirements shall be posted around the zone immediately. The sampling team will be asked to collect samples of the suspect material, using the original Sampling and Analysis Plan. The samples will be sent to an approved laboratory with the Quickest turnaround time. The project team should be aware of which laboratory to go to. As soon as the results are available the construction subcontractor will be asked to provide trained personnel, as required in the subcontract, to deal with the contaminated material. The IWCP may need to be revised at this point to include the additional activities. As much as possible the Project Manager will see to it that team continuity is maintained in the project and personnel familiar with the project are asked to perform on these additional tasks. Once the hazardous substance has been disposed of, any special restrictions that were put in place due to the incident shall be removed and the project proceed as before.

The Project Manager will keep the Kaiser-Hill (K-H) manager apprised of the situation at all times and he in turn will be expected to keep DOE informed. Based on input from the construction subcontractor and his own information the PM will assess the impact to the cost and schedule of the project baseline as soon as possible and submit a Baseline Change Proposal (BCP) to Kaiser-Hill to recover such cost and schedule.

Potential Problem

Encounter unexpected/concealed structures, systems, or components.

Mitigation Plan

The subcontract award to a construction subcontractor, be that an AE/C/CM or others, shall include the requirement for the subcontractor to provide unit pricing, on a per ton, per lineal feet or other basis for the removal of unexpected structures, systems or components. The project team will try to identify such unknowns to the Subcontract Administrator during the Request For Proposal (RFP) phase of the project.

In the event such unexpected structures or systems are encountered, work in that area will be stopped and workers reassigned to other activities pending resolution of the situation. Industrial Safety and Hygiene will be notified at once along with Radiological Engineering. The structures or systems will be surveyed for hazardous material or radiological contamination. If the systems involve electrical wiring or equipment, or piping systems carrying unknown material, Fire Protection Engineering and Alarm Technicians will need to be contacted to identify these systems and to ensure that they will not affect any other area. Based on information thus acquired the construction subcontractor will proceed to remove these systems with any added precautions as specified by the Safety professional. The IWCP will need to be revised at this point to include the additional activities. To the extent possible the Project Manager will see to it that team continuity is maintained in the project and that personnel familiar with the project are asked to perform these additional tasks.

The Project Manager will keep the Kaiser-Hill (K-H) manager apprised of the situation at all times and he in turn will be expected to keep DOE informed. Based on input from the construction subcontractor and his own information the PM will assess the impact to the cost and schedule of the project baseline as soon as possible and submit a Baseline Change Proposal (BCP) to Kaiser-Hill to recover such cost and schedule.

Potential Problem

Closure Description Document is not approved by the State.

Mitigation Plan

If the Closure Description Document is not approved by the State of Colorado by the time the Baseline schedule calls for it, the Project Manager along with the Regulatory Compliance Manager from both RMRS and K-H shall take the following actions to mitigate the situation. An urgent meeting will be set up with the representatives of the State to discuss their comments and to respond to these as swiftly as possible. In the meantime the PM will proceed with all preliminary work that does not actually start the closure process even if this work was not scheduled at this time. K-H and DOE will be kept informed of the situation. If need be procurement will delay the subcontract mobilization and negotiate with the subcontractor to maintain the schedule end date. If in spite of all the efforts the project is still delayed the PM will make an assessment of cost and schedule delay and submit a BCP to K-H for approval.

Potential Problem

Experience delays due to unusually severe weather conditions.

Mitigation Plan

If the project experiences delays due to unusually severe weather and work is shut down by the Safety professionals or site closures, the PM and the Subcontract Administrator will negotiate with the subcontractor to make up the delay by finding workarounds or providing additional resources. The Project Manager and his Construction Superintendent will be responsible for identifying workarounds. However, weather being an act of God and safety related, there will be cost impacts to the project. The PM will keep the K-H PM and DOE informed of a cost impact as early as possible and submit a BCP as soon as the total impact can be determined. If construction is planned during winter months it is a good idea to include a reasonable weather delay cost in the contingency.

Potential Plan

Accident or injury.

Mitigation Plan

In the case of an accident or injury the individual/s involved will be immediately escorted to Medical for attention. All work in the area will be suspended and the Project Manager will immediately inform the VP of Operations, the Director of Health & Safety and others as appropriate. The PM along with the Safety Professional will start an investigation into the cause of the accident. Once the cause is determined, improvements to the work place will be incorporated if so required or if a result of an individual not following proper procedures, etc. a safety meeting will be held with all workers to stress the need for individual participation. Daily tool box meetings will be held to emphasize safe work practices, knowledge of job to be performed, who to contact in case of doubt, etc. Work will be resumed only after it is determined that the cause of the accident has been eliminated. The individual/s involved shall be allowed to return to work depending on the decision from medical. K-H and DOE will be kept informed at all times.