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Single-Shell Tank Program Plan

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Abstract: This document provides an initial program plan for retrieval of the single-shell tank waste. Requirements, technical approach, schedule, organization, management, and cost and funding are discussed. The program plan will be refined and updated in fiscal year 2000.

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Single-Shell Tank Program Plan

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LIST OF TERMS

CMS	corrective measures study
CoCs	contaminants of concern
DOE	U.S. Department of Energy
DST	double-shell tank
Ecology	Washington State Department of Ecology
EIS	environmental impact statement
FDH	Fluor Daniel Hanford, Inc.
FY	fiscal year
LMHC	Lockheed Martin Hanford Corporation
MUST	miscellaneous underground storage tank
ORP	Office of River Protection
PHMC	Project Hanford Management Contract
RCRA	*Resource Conservation and Recovery Act of 1976*
RFI	RCRA facility investigation
ROD	Record of Decision
RPP	River Protection Project
S/RID	standards/requirements identification document
SST	single-shell tank
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TWRD	Tank Waste Retrieval and Disposal (organization)
TWRS	Tank Waste Remediation System
WBS	Work Breakdown Structure
WMA	waste management area

SINGLE-SHELL TANK PROGRAM PLAN

1.0 INTRODUCTION

This document describes the River Protection Project (RPP) Single-Shell Tank (SST) Program as it is designed to support the cleanup strategy identified in the Tank Waste Remediation System (TWRS) Environmental Impact Statement (EIS) (DOE/EIS-0189) and its associated Record of Decision (ROD) (62 FR 8693). The RPP is managed by the U.S. Department of Energy (DOE) Office of River Protection (ORP). This SST Program Plan describes the following:

- The program mission and organizational structure, roles, and responsibilities
- The waste problem posed by the SSTs and miscellaneous underground storage tanks (MUSTs) and the desired end-state of the SSTs
- The technical approach and associated logic for solving the tank waste and contamination problem
- Program work structure and schedule
- Program cost and funding requirements
- How the SST Program relates to other Hanford Site cleanup programs
- The management approach for planning and controlling the work.

The purpose of this document is to present the mission and strategy of the SST Program within the context of the RPP including the following:

- Planning, providing retrieval systems, and retrieving waste from the SSTs and MUSTs
- Developing and implementing corrective measures resulting from *Resource Conservation and Recovery Act of 1976* (RCRA) assessments of the SST farms
- Acquiring SST farm subsurface data to evaluate cumulative long-term risks to human health and the ecosystem from past tank leakage and potential future leakage due to waste retrieval processes.
- Identifying and developing technologies to (1) adequately measure and detect tank leakage, (2) provide waste retrieval systems that minimize leakage to an acceptable level during operation, and (3) close the SST and double-shell tank (DST) farms
- Closing SSTs, MUSTs, and DSTs.

> The SST Program Plan is designed to support the cleanup strategy identified in the TWRS EIS. The purpose of this document is to present the SST Program strategy within the context of the RPP.

The appendices at the end of this plan contain details of the projects that implement the overall SST Program, namely (1) SST Waste Retrieval System Definition and Implementation, (2) Tank Farm Vadose Zone, (3) Tank Farm Closure and Corrective Measures, and (4) Hanford Tanks Initiative.

Decisions regarding the strategy for cleaning the waste tanks and tank farms have been formalized in the TWRS EIS and its associated ROD (DOE/EIS-0189 and 62 FR 8693). The following list summarizes the current tank waste cleanup approach:

- Remove the wastes from the tanks
- Process and immobilize the waste
- Permanently dispose the low-level radioactive waste components in Hanford Site facilities
- Transport the high-level waste components to an offsite geological repository for permanent disposal

- Mitigate the risks caused by subsurface contamination.

The tank retrieval schedule, retrieval sequence, and retrieval rate will be influenced by immobilization facility requirements. Schedule milestones concerning the SST Program have been negotiated and are codified in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1996), commonly referred to as the Tri-Party Agreement.

The tank farms will be closed following completion of tank waste retrieval in a manner that protects human health and the ecosystem in accordance with Tri-Party Agreement Milestone M-45-00. Other regulatory requirements (e.g., WAC 173-303-645 and proposed Tri-Party Agreement Change Number M-45-98-03) have been imposed to investigate the SST farms' subsurface conditions and take action to minimize risks imposed by past and potential future contaminant leaks into the subsurface and groundwater.

1.1 Background

Since 1944, high-level radioactive waste that is a byproduct of spent nuclear fuel processing for the recovery of plutonium, uranium, and neptunium has been stored at the Hanford Site. Between 1944 and 1964 one hundred forty-nine SSTs were built in the 200 East and 200 West Areas on the Hanford Site central plateau. The SSTs are grouped into tank farms comprised of 4 to 18 SSTs. Each SST is constructed of a single, carbon steel shell that is housed in a steel, reinforced concrete wall and dome. Individual SST capacities range from 55,000 gallons to 1 million gallons. The SSTs contain approximately 23,000 curies of long-term-risk radionuclides (Appendix A). The tanks have exceeded their design life and are deteriorating. No waste has been added to the SSTs since November 1980 (HNF-EP-0182-134).

Records of changing SST inventories during their active status varied. As a result, the waste inventories in most SSTs can only be estimated. The behavior of the waste in the tanks was also monitored (e.g., temperature, liquid level, gas concentration). As a result of the monitoring, issues related to the safety of the tanks concerning the following were identified:

- Criticality
- Ferrocyanide content
- Propagation of exothermic reactions
- Presence of organics and flammable gases
- High heat.

Because of these concerns a significant effort was made to characterize and classify the waste in the SSTs, monitoring was increased, and corrective actions were taken to resolve the identified safety issues. One hundred thirty-nine of the SSTs have been sampled at least once in the past 10 years. All of the characterization and transaction information from the sampling activities has been assembled in the TWINS (Tank Waste Information Network System) database (TWINS 1999) for use in identifying the physical and chemical composition of waste in each tank.

The 48 MUSTs in the 200 Areas tank farm system include active and inactive tanks. The 36 inactive MUSTs are smaller than the SSTs and DSTs (i.e., 900- to 50,000-gallon capacities) and were used for settling solids out of liquid waste before decanting the liquid to cribs, reducing the acidity of process waste, recovering uranium, collecting waste transfer leakage, and handling waste. The volumes of wastes in the inactive MUSTs are estimated to be less

than 1% of the total waste volume in the SSTs (HNF-EP-0182-135). The remaining 12 active MUSTs are used as receiver tanks during waste transfer activities or as catch tanks to collect potential spills and leaks.

Safety concerns identified in 1990 resulted in 52 SSTs and DSTs being put on a Watch List. By 1999, 30 of these tanks had been removed from the watch list due to closure of safety issues. The remaining 22 (SSTs) are currently on the Watch List (Public Law 101-510). The tanks on this list may pose risks of release of high-level waste due to uncontrolled increases in temperature or pressure. Of these tanks, 19 are on the Watch List because of the potential for hydrogen generation, 2 for presence of organics, and 1 for high heat levels (HNF-EP-0182-134). In fiscal year (FY) 1999, waste retrieval from tank C-106 removed sufficient waste to mitigate the high-heat risk and support closure of the safety issue in FY 2000.

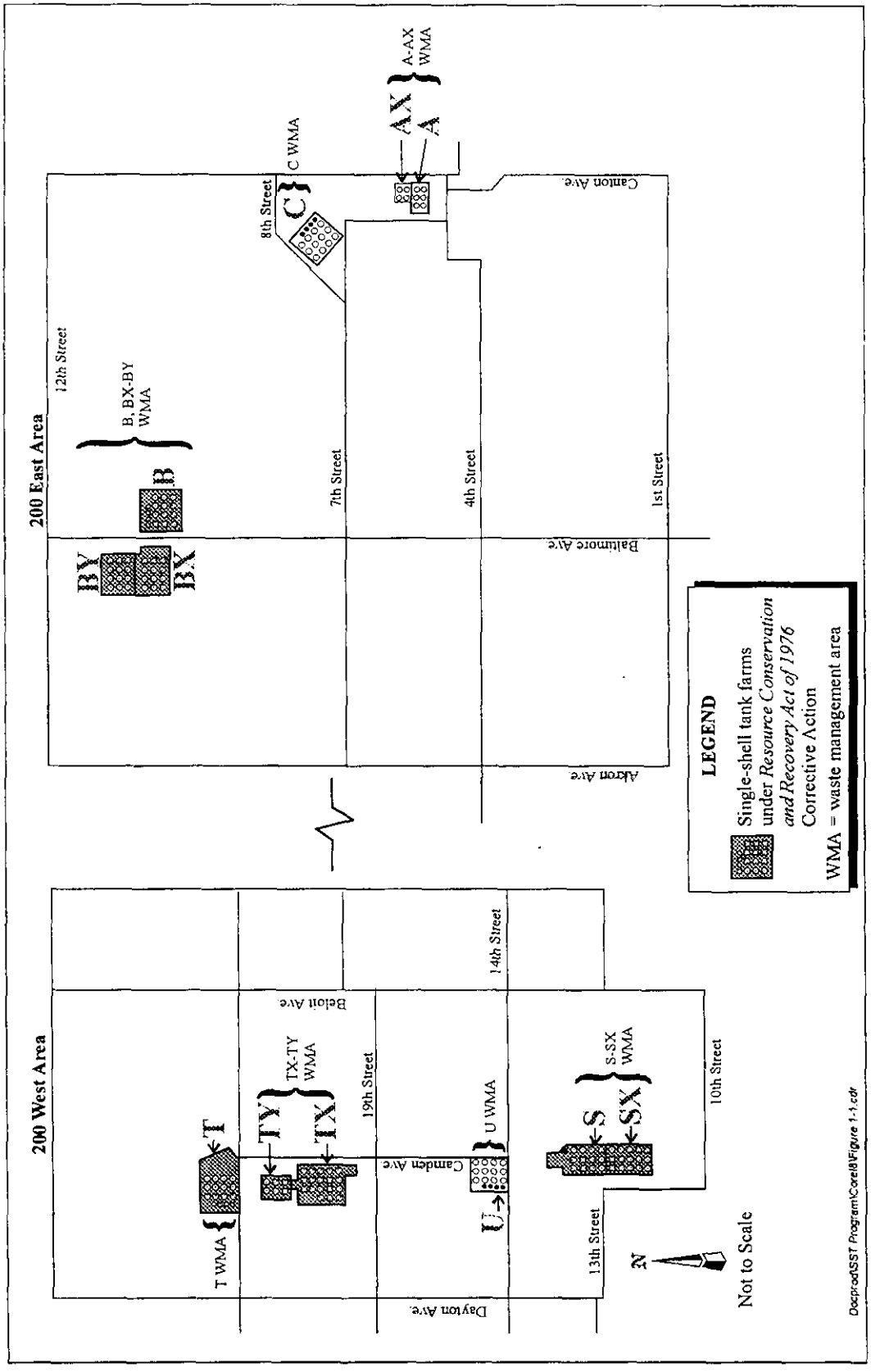
The 149 SSTs are hazardous waste management units regulated under Chapter 70.105 of the *Hazardous Waste Management Act* and the act's implementing requirements. The SSTs are currently operating under RCRA interim status regulations pending closure (i.e., waste can be stored in the tanks but no active management can occur). For purposes of assessing and monitoring the groundwater at the 12 SST farms, 7 waste management areas (WMAs) have been defined (see Figure 1-1). To date, past tank leaks and other releases within the tank farms have resulted in groundwater contamination documented at four of the SST WMAs (PNNL-11809, PNNL-11810, PNNL-11826).

1.2 Desired End State

The desired end state at completion of the SST Program is reduction of the potential human health and ecosystem threat posed by the waste material located in the SSTs, MUSTs, and subsurface soil to an acceptable level. The following summarize the definition of an acceptable level that will be described in a tank farm closure EIS and in a RCRA tank farm closure plan.

- Waste in tanks and tank farm ancillary equipment shall be removed to the extent required.
- Tanks and tank farms ancillary equipment will be removed or disposed of in place.
- Tank farm subsurface contamination will be removed or otherwise mitigated.

Figure 1-1. Map of Single-Shell Tank Farm Locations and Waste Management Area Boundaries



2.0 MISSION

The RPP mission is described and analyzed in the RPP Mission Analysis Report (HNF-SD-WM-MAR-008). The RPP mission scope includes the activities needed to accomplish the following:

- Resolve safety issues
- Operate, maintain, and upgrade the tank farms and supporting infrastructure
- Construct, operate, and maintain facilities necessary for waste storage, retrieval, separation, immobilization, and disposal or shipment
- Characterize, retrieve, separate, and immobilize the waste for disposal
- Provide for disposition of the cesium and strontium capsule contents
- Provide disposal of immobilized low-activity waste onsite
- Provide interim storage of immobilized high-level waste until it is shipped to the national geologic repository
- Provide for the decontamination, decommissioning, and closure of RPP facilities and for post-closure monitoring.

Stakeholders are an important interface in carrying out the RPP mission. Stakeholder values of highest importance include the following:

- Protect public and worker health and safety
- Protect the Columbia River
- Make progress with the cleanup activities
- Clean up to the level necessary to accommodate future use options
- Capture economic development opportunities locally
- Protect the rights of the Tribal Nations
- Ensure compliance
- Reduce cost
- Use a systems approach
- Allocate funds to high-priority items
- Do not rely on unproven technologies, but use technological innovations as they become available.

SST Program Mission

- Develop methods necessary to safely and effectively retrieve SST and MUST waste and transfer the waste to DSTs
- Select, design, test, and procure waste retrieval equipment
- Investigate past leak contamination and implement measures to mitigate threats to human health and the ecosystem
- Provide management oversight of safe SST and MUST waste retrieval
- Develop requirements and systems necessary to close SSTs, MUSTs, and DSTs in compliance with applicable regulations

The SST Program mission is to develop and implement a strategy to safely, efficiently, and effectively transform the current SSTs and MUSTs into the desired end state by accomplishing the following:

- Develop the methods to safely and cost effectively remove wastes from SSTs and MUSTs to the extent required
- Identify and implement measures to prevent tank farm waste releases from threatening human health and the ecosystem
- Define and implement a cost-effective and permanent closure of the SSTs, MUSTs, and DSTs.

The SST Program includes all activities necessary to identify, develop, and deploy a SST waste retrieval system, subsurface corrective measures, and a tank farm closure system that may comprise several retrieval technologies. Cleanup activities associated

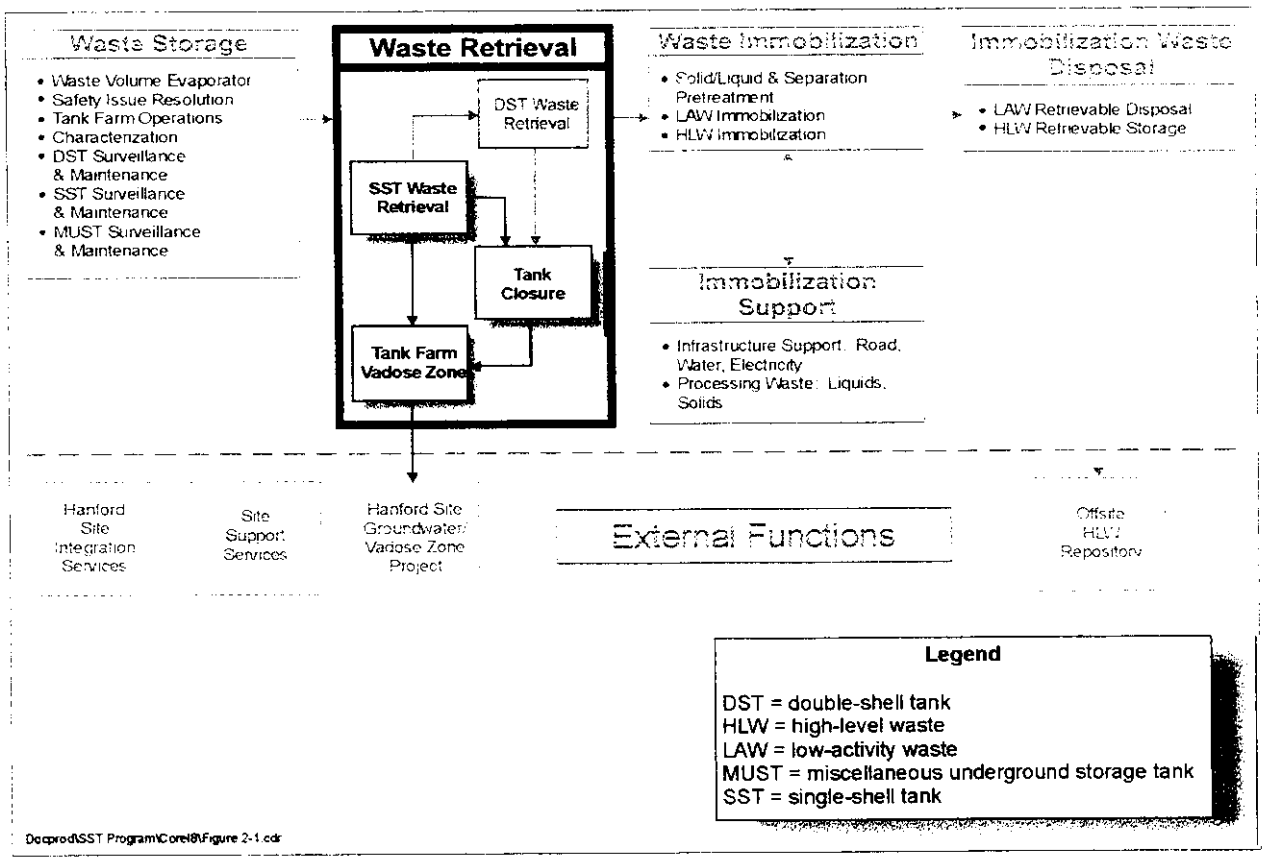
with the SSTs can be directly applied to MUSTs cleanup; therefore, the plans for the MUSTs are included in the SST Program. The selected technologies will safely and effectively retrieve waste from the 149 SSTs and 48 MUSTs, transfer the retrieved waste to DSTs, characterize and correct the leakage contaminant conditions in the SST farms subsurface, and close the SST and DST farms.

DST space availability must be considered in the SST Program strategy because the DSTs will receive waste from the SSTs and MUSTs. The DSTs will be closed under the SST Program when all of the waste is removed from those tanks.

The SST Program is responsible for the following activities within three primary subfunctions of the RPP (see Figure 2-1).

- **SST Waste Retrieval**—Retrieve waste from the SSTs and MUSTs and transfer that waste to DSTs for storage prior to processing the waste by the Waste Immobilization function.
- **Tank Closure**—Permanently close the SSTs, MUSTs, and DSTs and remove or otherwise permanently dispose of the ancillary equipment to minimize long-term health and safety risks. This function also mitigates the subsurface contamination risks through corrective actions.

Figure 2-1. Functional Components of the River Protection Project



- **Tank Farm Vadose Zone**—Collect information pertaining to the contaminants that have leaked into the tank farms subsurface and provide this information to (1) the SST Waste Retrieval function for use in retrieval system design and operation to minimize further contamination of the subsurface during retrieval operations, (2) the Tank Closure function for use in correcting the contaminant conditions and completing permanent closure of the tank farms, and (3) the Hanford Site Groundwater/Vadose Zone Integration Project for use in understanding site-wide contaminant migration risk to human health and the ecosystem.

The SST Program scope encompasses all tank closure and tank farm vadose zone activities. The SST Program scope encompasses the following for SST waste retrieval:

- Development and deployment of the SST waste retrieval systems, including technology development where required
- Performance measurement of the SST waste retrieval system against those requirements
- Management oversight of safe SST and MUST waste retrieval.

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3.0 REQUIREMENTS

The RPP and its programs, systems, and processes must satisfy numerous requirements and guidance documents. These requirements are identified and detailed in the TWRS Program Plan (HNF-1883). These requirements dictate, to a substantial degree, the work scope, schedule, and budget for the tasks supporting the RPP mission, including the SST Program and its four organizational subgroups (see Section 8.0). The sources of these requirements and guidance include the following:

- Promulgated laws and regulations (e.g., U.S. Environmental Protection Agency, Washington State Department of Ecology [Ecology])
- Orders and directives (e.g., DOE O 425.1 and DOE O 430.1A)
- Implementing procedures (e.g., safety authorization bases)
- Professional organizations and societies (e.g., American National Standards Institute)
- Contractual documents (e.g., Project Hanford Management Contract [PHMC])
- Planning guidance (e.g., Good Practice Guide GPG-FM-010).

The minimum safety requirements derived from these sources are identified in the standards/requirements identification document (S/RID) specific to RPP, categorized in 20 functional areas, and organized by facility (e.g., 200 Area tank farms and 242-A Evaporator). S/RID requirements are included in the PHMC contract with DOE. The ERMI (Environmental Requirements Management Interface) database (ERMI 1999) contains the requirements identified in the RPP S/RID. The database (1) maintains a link between the identified requirements and the implementing plans and procedures and (2) helps ensure that S/RID requirements are addressed in PHMC and RPP documents and procedures and implemented in RPP activities.

The current baseline plan for SST and MUST waste remediation is represented by the achievement of specified milestones contained in the following:

- The Tri-Party Agreement (see Table 3-1)
- Contracted interface control agreements between DOE and BNFL, Inc. (see Table 3-2).

A number of Tri-Party Agreement milestones were negotiated before there was a commitment to privatize the waste immobilization facilities. As a result of the decision to privatize, some of these milestones will require changes to accommodate the privatization strategy in a cost-effective and realistic manner. These milestones will be evaluated and re-negotiated in the next several months. The SST Program strategy is to meet these milestones in a safe and environmentally sound manner and within cost constraints.

The requirements and guidance from all sources have been considered when developing the SST Program technical baseline, defining mission work scope, and establishing administrative systems. In addition to use of the S/RID, key requirements for the RPP mission are also captured in documents such as the Retrieval and Disposal Mission Technical Baseline Summary Description (primarily Phase I) (HNF-1901).

Technical requirements for the SST mission start with the TWRS mission analysis report, which provides traceability of technical

requirements to their source documents. The SST Program mission analysis report (HNF-2944) relates the specific SST requirements to the RPP MAR (HNF-SD-WM-MAR-008). In addition the SST System Specification (HNF-3912) contains technical requirements derived from the TWRS architecture specification (HNF-4208). The Closure Work Plan provides the starting point for developing closure technical requirements. The Phase I RCRA facility investigation (RFI)/corrective measures study (CMS) work plan for SST WMAs (DOE/RL-99-36) provides the starting point for SST RCRA/Corrective Measures technical equipment.

Key programmatic requirements that must be satisfied by the SST Program are integrated into the management practices and systems. Integration is an iterative process of continuing assessments as the project matures and source requirements and guidance are revised.

Table 3-1. Selected Tri-Party Agreement Milestone Schedule Requirements

Date	Milestone	Title
12/31/2000	M-45-04-T02	Complete Design for the Initial SST Waste Retrieval Systems
12/31/2000	M-45-08A	Complete System Design and Operating Strategy for Tank Leak Monitoring and Mitigation for Systems to be used in conjunction with Initial Retrieval Systems for SSTs
06/30/2003	M-45-04-T03	Complete Construction for Initial SST Waste Retrieval Systems
06/30/2003	M-45-08	Establish Full Scale Capability for Mitigation of Waste Tank Leakage during Retrieval Sluicing Operations
06/30/2003	M-45-08B	Complete Demonstration and Installation of Leak Monitoring and Mitigation System for Initial SST Waste Retrieval
11/30/2003	M-45-04-T01	Provide Initial SST Waste Retrieval Systems
12/31/2003	M-45-05-T01	Retrieve Waste from One SST
02/2004	M-45-55 (draft)	Submit Phase I RFI Report integrating results of data gathering activities and evaluations for WMAs S-SX, T, TX-TY, and B-BX-BY and related groundwater monitoring activities
2004	M-45-59 (draft)	Control surface water infiltration pathways as needed to control or significantly reduce the likelihood of migration of subsurface contamination to groundwater at the SST WMAs
06/30/2005	M-43-00	Complete Tank Farm Upgrades
03/31/2012	M-45-06-T03	Initiate Closure Actions on an Operable Unit or Tank Farm Basis
03/31/2014	M-45-06-T04	Complete Closure Action on One Operable Unit or Tank Farm
09/30/2018	M-45-05	Complete Retrieval of Waste from SSTs
09/30/2024	M-45-00	Complete Closure of all SST Farms
12/31/2028	M-60-00	Complete Immobilization of LAW
12/31/2028	M-50-00	Complete Vitrification of HLW

LAW = low-activity waste
HLW = high-level waste
RFI = *Resource Conservation and Recovery Act of 1976* facility investigation
SST = single-shell tank
WMA = waste management area

Table 3-2. Interface Control Document Agreements Between DOE and BNFL, Inc.

Document	Subject	Agreement
HNF-SP-1223-ICD-19	LAW feed	Deliver first feed batch of Envelope C containing 300 to 600 units of LAW at the earliest practical date, but no later than May 2006. Transfers will occur no more frequently than once every 30 days per 100 units of LAW waste delivered. DOE intends to transfer subsequent batches to fill the contractor's feed tank in optimum practical quantities.*
HNF-SP-1225-ICD-21	HLW feed	DOE will deliver an initial feed batch (including flush water) of HLW slurry in a quantity of at least 600,000 liters, but no more than 675,000 liters currently scheduled for September 2004. Additional HLW feed will be delivered in quantities between 200,000 and 600,000 liters. Before LAW immobilization services are provided by BNFL, Inc., waste will be delivered at a rate of up to 600,000 liters per 30 calendar days. After LAW immobilization services are available, HLW feed will be delivered at a rate sufficient to produce 33 HLW canisters every 100 days.

*"Unit of LAW" is defined in Specification 7.2.3
DOE = U.S. Department of Energy
HLW = high-level waste
LAW = low-activity waste

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4.0 TECHNICAL APPROACH

This section provides information on the SST Program technical approach that will be implemented to attain the mission identified in Section 2.0. Specifically, the section begins with a problem statement that summarizes the initial state and conditions that must be considered in developing and implementing the technical approach. An overview of the technical approach that identifies how the program will address problem definition, identify and select solutions, and implement solutions is then provided. Finally, the technical approach for each Program component (i.e., waste retrieval, successful subsurface corrective measures, and closure) is discussed. Summary level information is provided on the schedule for implementation of the technical approach and project level logics. Additional information on schedule and logics are available in Appendices B and C.

4.1 Problem Statement

There are approximately 54 million gallons of radioactive and mixed wastes contained in the SSTs, MUSTs, and DSTs. The SSTs contain the majority (i.e., 35 million gallons) of the tank farm waste (HNF-EP-0182-134). Sixty-seven of the SSTs are known or suspected to have leaked approximately 1 million gallons of waste containing 1 million curies into the soil subsurface (HNF-EP-0182-134). The contaminants from these releases are migrating toward, and in some areas have entered, the groundwater. A potential future threat to humans and the ecosystem exists with (1) the potential for structural failure of the SSTs due to the continual aging of the tank, (2) potential for additional leakage from SSTs during waste retrieval, (3) known and suspected pathways of suspected waste contaminants to human receptors and the ecosystem, and (4) the nature of the contaminants in the SSTs and MUSTs.

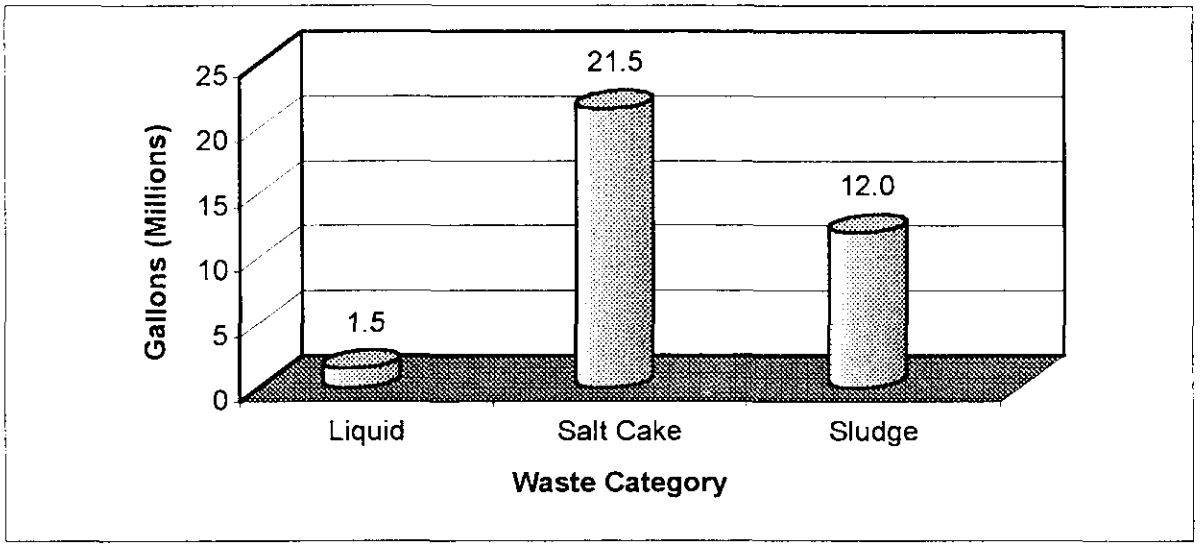
Contaminants of Concern—Radiological and chemical constituents that pose a potential threat to human health or the ecosystem and that may exceed risk-based action standards defined in Federal or State regulations. For a contaminant to pose a threat it must be present in sufficient concentrations in a pathway where a receptor could be exposed to the contaminant.

The current SST conditions are summarized in the following list (HNF-EP-0182-134).

- **Tank structural conditions**—67 SSTs are known or suspected to have leaked contents into the subsurface.
- **Current waste volume**—As of February 1999 the SSTs contained approximately 35.2 million gallons of waste composed of approximately
  - 21.5 million gallons of nonpumpable salt cake
  - 12.0 million gallons of sludge
  - 1.5 million gallons of supernate (HNF-EP-0182-133).

  The SSTs contain approximately 23,000 curies of contaminants of concern (CoCs) (Appendix A and BBI 1999). Approximately 95% of these contaminants are contained in approximately 70 SSTs (BBI 1999). The SSTs also contain various amounts of miscellaneous hardware (e.g., airlift circulators, thermocouple trees, steam coils) and materials (e.g., experimental fuel elements, cobalt slugs). Figure 4-1 summarizes the volumes of waste forms currently stored in SSTs.
- **Tank stabilization**—Liquids have been removed from 119 of the SSTs (HNF-EP-0182-134). Currently, 7 SSTs are being pumped and the pumpable liquids in the remaining SSTs will be removed by 2004.

Figure 4-1. Volume of Waste by Form



- **Past leaks**—67 SSTs have leaked an estimated 750,000 to 1,050,000 gallons of waste (HNF-EP-0182-134). These leaks have contained approximately 1 million curies of radionuclides. Groundwater contamination has been documented at four of the seven SST WMAs. At least one contaminant of concern, Tc-99, has been detected in the monitoring wells down-gradient from the S-SX WMA (PNNL-11810). Pumpable liquid is being removed and transferred to DSTs to prevent future leaks to the subsurface.

Approximately 50% of the current curie inventory in the SSTs is cesium-137 and strontium-90 (BBI 1999). These radionuclides are not very mobile in soils or groundwater and have relatively short half lives (i.e., 30 to 40 years). The current understanding of the migration of these contaminants is that they would not pose risk at levels exceeding regulatory standards by the time they migrate to groundwater and to a down-gradient point of compliance for potential receptor ingestion (DOE/RL-96-16). However, other CoCs (e.g., Tc-99, I-129, U-238, C-14) have very long half lives (i.e., 10^5 or more years) and may migrate relatively fast through soils and groundwater (DOE/RL-96-16). Although these contaminants represent less than 1% of the SST waste inventory there is sufficient existing inventory of these CoCs in the SSTs and from past leaks to the soils to pose a potential down-gradient threat to future human receptors at the point of compliance and to the ecosystem.

Gamma radiation activity has been extensively logged since the early 1960s for 6 to 10 dry wells placed around each tank (HNF-2603). The gamma emitter Cs-137 remained in the liquid along with the CoCs at the time of leakage from the tank. Therefore, if there were a tank leak, a gamma fingerprint beneath the tank should be present if the leak was large enough to be detected through the drywell system. Beta-emitting CoCs would likely have migrated further than the gamma emitters.

4.2 Approach Overview

Through the 1990s the focus of SST farm work to address the known SST problems has been on the following:

- Safety issues resolution
- Tank stabilization
- Tank farm infrastructure upgrades
- Tank waste characterization.

The technical approach of the SST Program is now driven by the following significant issues and constraints:

- Waste must be retrieved from the SSTs on a fixed schedule and in sufficient quantity to feed a privatized waste immobilization facility
- Technology for SST waste retrieval must be selected and demonstrated in time to support cost-effective waste retrieval to provide waste feed for immobilization facilities and the eventual privatization of waste retrieval; solutions to the SST waste retrieval problem may require new technology development
- The extent of the risk to human health and the environment posed by the SSTs and associated subsurface contamination must be established to identify the correct integrated cleanup approaches that will support an EIS and compliance with state and federal regulations
- SST farms cleanup problems must be solved with limited annual funding.

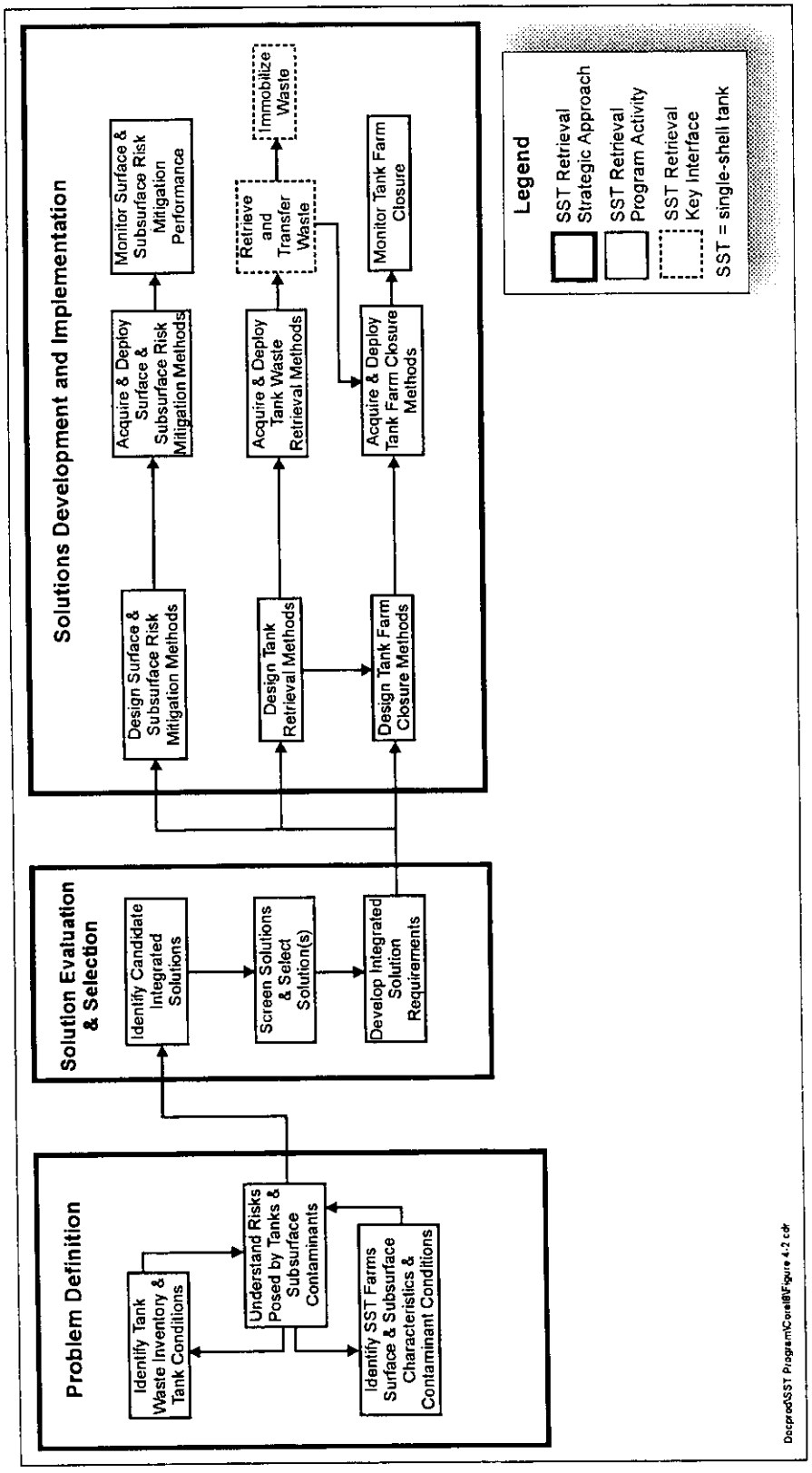
These issues and constraints require a fast-track technical approach wherein the solutions may be sub-optimized but acceptable to meet schedule and cost constraints. Proper prioritization of work that considers risks and optimum use of available funds is key to the success of the program. Therefore, the following technical approach has been adopted (see Figure 4-2) and begins with completing a problem definition for SSTs that includes the following activities:

- Completion, update, and refinement of tank waste characterization data
- Characterization of (1) subsurface waste content and configuration and (2) subsurface hydrogeologic properties
- Risk assessments using the acquired tank and subsurface characterization data to determine the extent of the near-term and long-term risks to human health and the environment.

With the problem definition complete, alternative solutions will be defined to address those problems and select solutions that involve the following:

- Applying existing solutions to near-term problems (e.g., retrieving waste from nonleaking tanks using existing sluicing methods if needed to meet waste feed delivery requirements)
- Identifying other solution alternatives, performing alternatives trade studies, and selecting the solutions that will solve the defined problem(s)—the solutions will contain integrated technical approaches to (1) waste retrieval; (2) leak monitoring and mitigation; (3) containment and possibly selected cleanup of subsurface contamination; and (4) tank farm closure
- Documenting the proposed solutions and screened alternatives in a tank farm closure EIS that will provide the basis for proceeding with implementation of the solutions
- Selection of the solution set from among the screened alternatives
- Development of the top-level functional requirements for the solutions that will govern the design and implementation of the solutions for the defined problems.

Figure 4-2. Logic for the Single-Shell Tank Program Approach



Finally, the technical approach will develop and implement the selected solutions to achieve the following:

- Completion of subsurface investigations and implementation of interim actions to mitigate the migration of contaminants to groundwater and the Columbia River
- Completion of interim stabilization (i.e., removal of pumpable liquid from the SSTs) to reduce risk of contaminant leakage to the subsurface and hence reduce risk to human health and the environment
- Development, detail design, acquisition, and demonstration of retrieval technologies required to meet functional requirements
- Retrieval and transfer of SST waste to immobilization facilities
- Closure of tank farms.

This progression from safety issue resolution to retrieval and treatment and finally to tank farm closure is the logic path of the Tri-Party Agreement, which was designed to bring the tank farms into regulatory compliance and has wide stakeholder, Tribal Nation, and regulator support.

The following subsections describe each element of the overall technical approach in more detail.

4.2.1 Complete Problem Definition

The quantity, content, and characteristics of the wastes contained in the SSTs and subsurface must be adequately understood to determine the extent of the risk to public health and the environment. A partial picture has emerged from results of past investigations, but a sufficient understanding of the problem does not yet exist. Completing this understanding of the problem is essential to formulating appropriate and cost-effective solution(s). The following actions are necessary to complete problem definition.

- Identify and understand the SST waste inventories and forms; tank structural conditions and integrity; and waste chemistry, thermal behavior, and mechanical behavior. The Tank Characterization Project within the RPP is responsible for supporting this objective.
- Identify and understand the tank farm subsurface contaminant conditions, subsurface geology and hydrology, and geohydrologic behavior of the CoCs. The SST Program Tank Farm Vadose Zone group will complete these investigations and provide the necessary information to support SST waste removal, tank farms closure, and corrective measures.
- Evaluate risks to human health and the ecosystem based upon completion of tank and subsurface structure, inventory, and waste behavior characterization.

The risk assessment effort uses tank, subsurface, and groundwater characterization data to analyze the characteristics of CoCs migration to human and ecosystem receptors and their associated impacts. Significant risk assessments have been completed based on limited characterization data (DOE/EIS-0189, PNNL-11800, DOE/RL-98-72).

These assessments resulted in a set of preliminary recommendations related to additional data needs and extent of retrieval required. The assessments also provide the foundation and methodology upon which more detailed assessments can be made as more characterization data becomes available.

4.2.2 Identify, Evaluate, and Select Solutions

Upon completion of the problem definition, a comprehensive set of top-level integrated SST Program technical requirements will be developed to guide the potential solutions to the identified problems. These requirements will represent an optimized trade-off between corrective measures, waste retrieval, and tank farm closure actions. The integrated requirements will address the following:

- Near-term and long-term risks identified in the risk assessments
- Retrieval rates, tank sequences, and waste composition necessary to support waste immobilization
- Tri-Party Agreement and environmental regulatory requirements
- Current status of near-term and interim corrective measures
- Technology (existing and emerging) capabilities
- Programmatic requirements (e.g., cost, schedule, site contracting and phasing strategies).

The initial requirements have been allocated to the SST Program elements in the form of specifications. These specifications will be refined and updated as the project matures. This approach is consistent with the systems engineering approach required by the RPP System Engineering Management Plan and the action requested in a recommendation from the Defense Nuclear Facilities Safety Board (DNFSB 94-2).

Development and implementation of the integrated solutions will have three major components:

- **Near-Term and RCRA-Required Corrective Measures**—Identifying and implementing near-term, interim, and RCRA-required permanent corrective measures by understanding how rapidly leaked tank waste is migrating to the groundwater and the resulting threat to the public or environment
- **SST Waste Retrieval**—Retrieving different types of waste from the SSTs by understanding the chemical and physical nature of the waste, the structural and leak integrity of the tanks, designing and evaluating the tools for waste retrieval
- **Tank Farms Closure**—Closing SST and DST farms to cleanup levels specified in a closure EIS and RCRA closure plan.

4.2.3 Develop and Implement Solutions

Upon completion of integrated requirements definitions for each of the three major SST Program components, the detailed development and implementation of these components can be completed. Work on these components has been started without a complete set of integrated requirements due to the immediate need to reduce risk from the SST farms to public and worker health and the ecosystem. Work will continue in parallel with completion of problem definition and development of integrated requirements to complete the SST Program objectives within the programmatic issues and constraints described in Section 4.1.

4.3 Single-Shell Tank Program Component Implementation

This section provides the technical approach for each SST Program component (i.e., waste retrieval, corrective measures, and tank farm closure). The discussion for each program component begins with an overview of the technical issues and assumptions that drive the approach

followed by discussions of the near-term and life-cycle activities that are planned to implement the technical approach. Figure 4-3 illustrates the schedule for major activities required to complete the life cycle mission of the SST Program. The figure illustrates the program logic and the relationship among program components. Figure 4-3 also summarizes the total annual cost estimate for the program. Additional details of the activities, schedule, and cost estimates are available in Sections 5, 6, and 7 respectively, and also in Appendices B and C.

4.3.1 Near-Term and RCRA-Required Corrective Measures

Corrective measures may be required in the near-term to address past releases from the SSTs within tank farm boundaries. Subsurface characterization is being conducted in the tank farms to determine if corrective measures are required. The information collected from the subsurface will guide what, if any, near-term corrective measures will be implemented to mitigate further migration of contaminants in the soils or groundwater until the tank farms are closed. Information from these near-term activities will also be used to guide how to retrieve waste from the tanks and how to permanently close the tanks and tank farms. For waste retrieval decisions, subsurface information will be used (1) to determine if deployment of water-based retrieval systems pose an unacceptable risk of additional losses to the environment and (2) as one factor in setting design and operation parameters for waste retrieval systems. For closure decisions, information from the subsurface will be used to determine the extent of cleanup activities required prior to closure of the tank farms.

4.3.1.1 Overview

Corrective measures of surface and subsurface conditions is an ongoing process that will continue during retrieval and into tank farm closure.

Near-term corrective measures are primarily associated with good housekeeping practices and comprise ensuring safe management of the tank farms in a manner that will not (1) contribute additional contamination to the surface and (2) contribute to faster migration of contaminants previously released to the subsurface. These corrective measures mitigate known risks and the technology employed is proven.

RCRA-required corrective measures result from monitoring of the groundwater system and tank farm vadose zone studies where potential long-term risks to public health and the ecosystem due to past leaks and spills are detected. Based on findings from groundwater assessments, 8 of the 12 SST farms have been placed in the RFI and CMS process. This process requires increased sampling of groundwater and soils to determine the nature and extent of existing contamination, assessment of contaminant migration and potential risks to human health, and implementation of corrective interim measures to mitigate contaminant migration. Figure 4-4 shows the RFI/CMS process. These corrective measures may require technology development.

4.3.1.2 Near-Term Corrective Measures

Several of the corrective measures are being managed by Hanford Site projects other than the SST Program (e.g., Tank Farm Operations). The following are some past and current interim corrective measures implemented by various components of the RPP:

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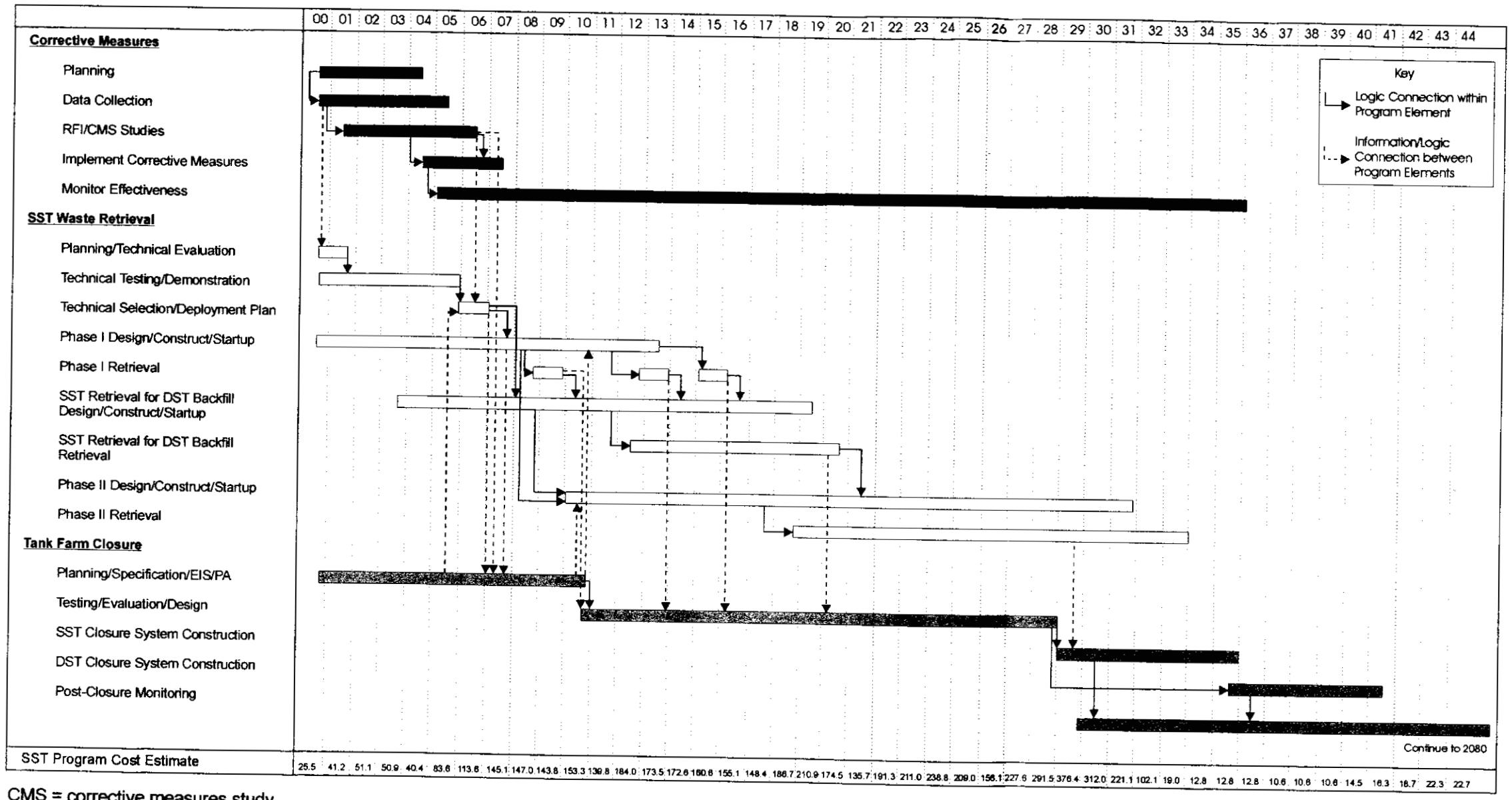
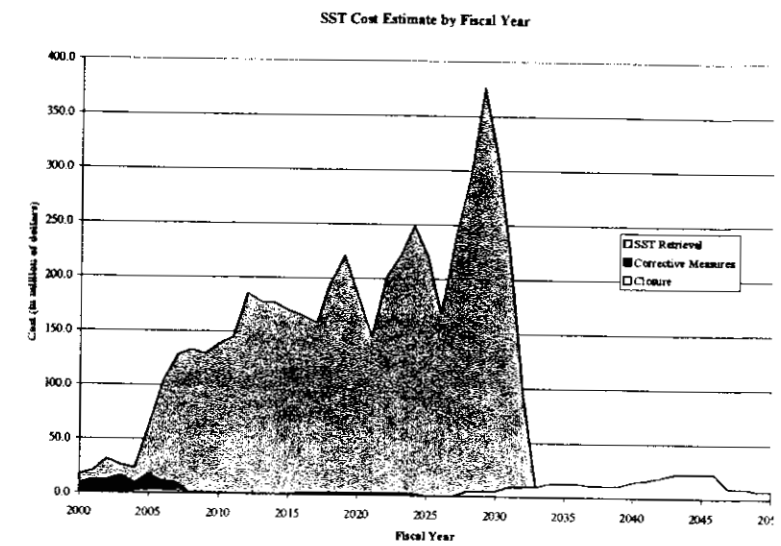
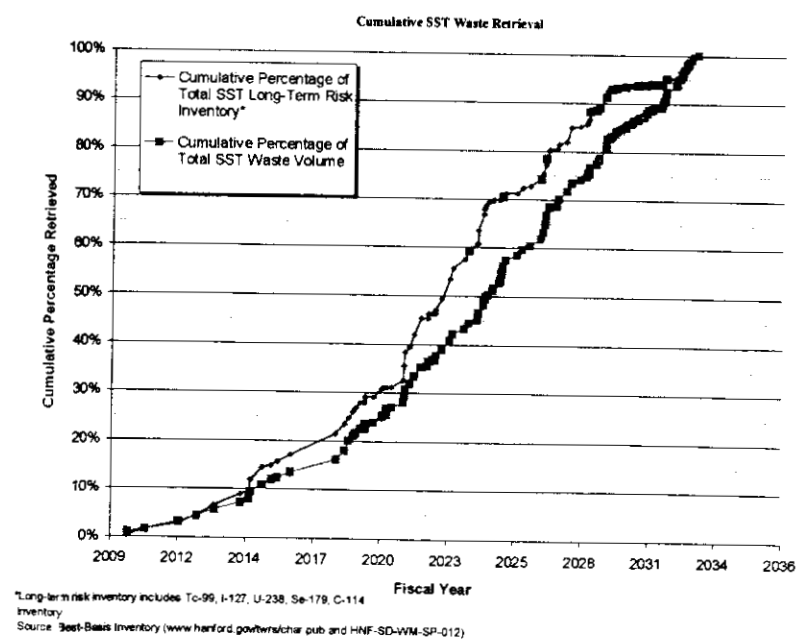
Figure 4-3. Single-Shell Tank Program Schedule Summary, Logic Connections and Cost Estimates







*Long-term risk inventory includes Tc-99, I-127, U-238, Se-179, C-114 inventory.
Source: Best-Basis Inventory (www.hanford.gov/twrs/char.pub and HNF-SD-WM-SP-012)

CMS = corrective measures study
DST = double-shell tank
EIS = environmental impact statement
PA = performance assessment
RFI = *Resource Conservation and Recovery Act of 1976* facility investigation
SST = single-shell tank

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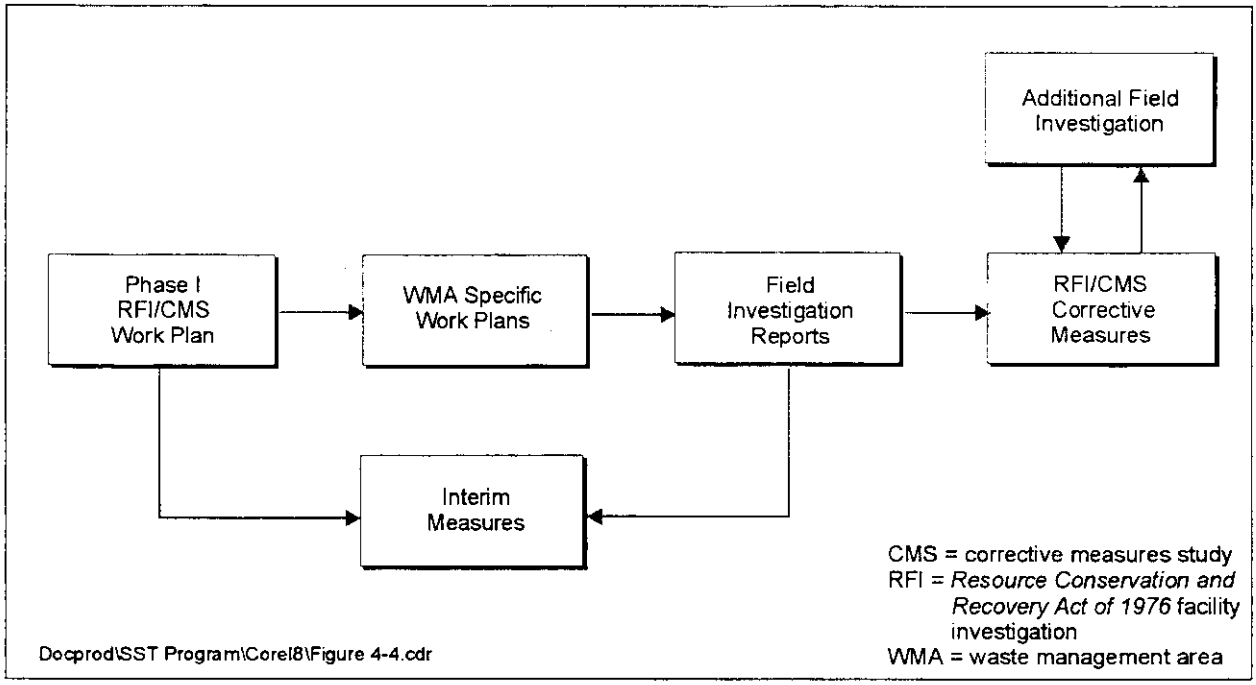
Figure 4-4. RCRA Field Investigation and Corrective Measures Study Process



- Interim tank stabilization to remove pumpable liquids from SSTs as a means of mitigating the potential for leak losses.
- Elimination of interstitial liquid releases to soils (e.g., process water to cribs, ditches, and ponds).
- Construction of the cross-site transfer line to replace a noncompliant waste transfer system with a system capable of moving waste from the 200 West Area to the 200 East Area and to support waste immobilization.
- Upgrade of leak-tight caps on drywells at the SST farms.
- Resolution or mitigation of safety issues (e.g., high-heat issue in tank C-106) that could impair the integrity of SSTs and lead to a loss of liquids from SSTs.

Other steps that are currently being evaluated or implemented to limit liquids that infiltrate the soils and accelerate the rate of contaminant migration include the following:

- Sealing and decommissioning drywells and boreholes
- Repairing or sealing old water lines within the tank farms
- Limiting or controlling tank farm surface water.

4.3.1.3 RCRA-Required Corrective Measures

Based on the results of groundwater assessments to date, Ecology requested that DOE develop and submit a corrective action plan for four WMAs having documented leaks. Ecology and DOE have negotiated the proposed Tri-Party Agreement Change Number M-45-98-03, which addresses the initial sequence of SST WMA investigations including the need for integrated subsurface and groundwater investigations. Table 4-1 contains the milestones associated with the proposed Tri-Party Agreement Change Number M-45-98-03.

Table 4-1. Proposed TPA Milestones: Single-Shell Tank Vadose Zone/ Corrective Actions (TPA Change Control Number M-45-98-03)

Date	Milestone	Title
TBD	M-45-56	Complete implementation of agreed-to interim measures
TBD	M-45-58	Submit a CMS for interim corrective measures (pending results and conclusions from the Phase I RFI Report – Milestone M-45-55 or subsequent RFI Reports)
TBD	M-45-59	Control surface water infiltration pathways as needed to control or significantly reduce the likelihood of migration of subsurface contamination to groundwater at the SST WMAs (pending the CMS Report, Milestone M-45-58, and implementation of other interim corrective measures)
06/1999	M-45-57	Complete upgrading of leak-tight caps on monitoring drywells around SSTs
08/1999	M-45-51	Submit DOE Phase I RFI/CMS Work Plan for SST WMAs
10/1999	M-45-52	Submit site-specific SST WMA Phase I RFI/CMS Work Plan addenda for WMA S-SX
05/2000	M-45-53	Submit site-specific SST WMA Phase I RFI/CMS Work Plan addenda for WMA B-BX-BY
09/2000	M-45-50	Complete development of a spectral gamma logging baseline for SST farms
12/2000	M-45-54	Submit site-specific SST WMA Phase I RFI/CMS Work Plan addenda for WMA's T and TX-TY
02/2004	M-45-55	Submit Phase I RFI Report integrating results of data gathering activities and evaluations for WMAs S-SX, T, TX-TY, and B-BX-BY and related groundwater monitoring activities

CMS = corrective measures study
DOE = U.S. Department of Energy
RFI = *Resource Conservation and Recovery Act of 1976* facility investigation
SST = single-shell tank
TBD = to be determined
TPA = Tri-Party Agreement
WMA = waste management area

The initial sequence of investigations includes initiation of preliminary characterization efforts in FY 1999 in WMA S-SX and characterization of the remainder of WMA S-SX followed by characterization of WMAs B-BX-BY, T, and TX-TY in FY 2000 through 2004. All of these efforts will be based on a Phase I RFI/CMS work plan to be issued in January 2000 and site-specific WMA RFI/CMS work plan addenda to be issued for each WMA. Following the completion of field activities for each of the WMAs, field investigation reports will be prepared. These reports will be the basis of the Phase I RFI report that will be submitted to Ecology in FY 2004.

Subsurface investigations are likely to continue for many years. Phase I of the RFI/CMS process for WMAs S-SX; T, TX-TY; and B, BX, BY is scheduled to conclude in 2004. At that time Ecology will determine if additional characterization is required to support evaluation of further corrective measures. If additional subsurface investigations are required DOE and Ecology will negotiate a scope and schedule for the follow-on work. Additional

investigations may be required to support tank farm operations, waste retrieval, waste disposal, and tank farm closure. Investigations may also be required at tank farms that are not currently under the RFI/CMS process.

The technical approach, schedule, and cost estimate assumes that similar investigations will be required in the remaining WMAs (i.e., A-AX, U, C). Current schedules have project activities being initiated in these WMAs in FY 2001 with completion of the RFI process in FY 2006.

4.3.1.4 Relationship of RCRA Corrective Measures to Waste Retrieval and Tank Farm Closure

An important part of the integrated SST Program technical approach is the relationship between RCRA corrective measures, tank farm closure, and SST waste retrieval functions. The subsurface and groundwater characterization data collected under RCRA corrective measures will provide information with which to evaluate and develop requirements for the following:

- Interim corrective measures to address potential risks from past tank leaks and tank farm operations
- Tank retrieval systems that will minimize potential releases of water and CoCs during the retrieval process
- Allowable waste quantity and CoCs content in closed tanks
- Tank farm closure mechanisms to minimize long-term release and migration of CoCs to receptors.
- Leak detection, monitoring, and measurement systems and requirements for use during retrieval
- Performance measures for retrieval technologies and production retrieval
- Tank farm closure criteria and performance measures.

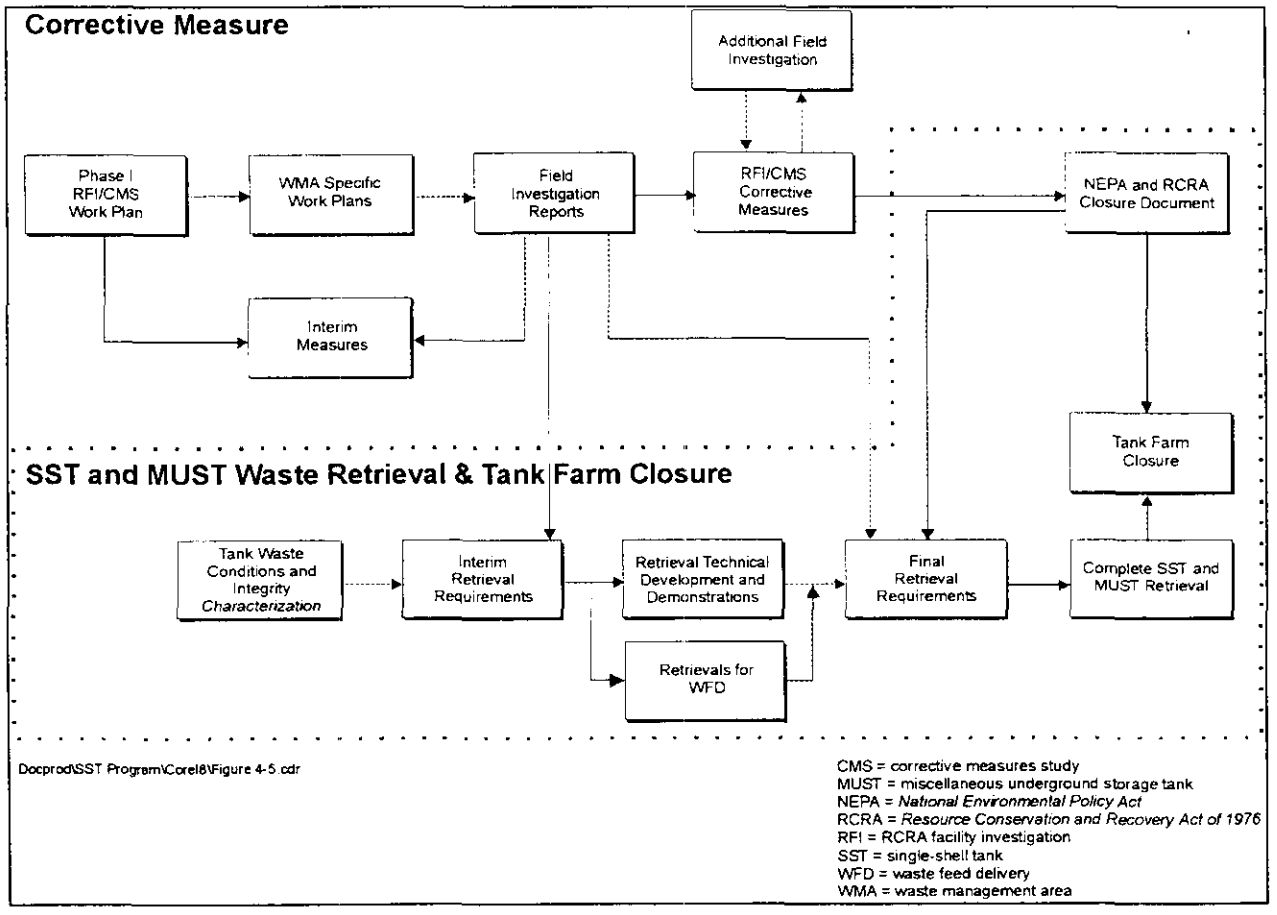
Figure 4-5 illustrates the relationship between corrective actions, SST waste retrieval, and closure activities.

The SST farm subsurface and groundwater investigations are being integrated as part of the Hanford Site Groundwater/Vadose Zone Integration Project. This effort supports the SST Program tank farm corrective measures and closure mission by:

- Addressing regulatory uncertainty that will influence the selection of corrective actions and closure options
- Providing an understanding of the cumulative affects of actions taken at the tank farms and other WMAs in the 200 Areas
- Understanding the total site contaminant migration pathways and cumulative contaminant of concern concentrations and risks to provide a comprehensive set of integrated corrective measures requirements
- Providing data associated with past tank leak migration and developing a defensible understanding of that past migration and of migration of potential retrieval leakage losses and tank waste residuals.[1]

[1]These data are important in establishing an understanding of the cumulative affect of planned SST and MUST waste retrieval and tank farm closure actions

Figure 4-5. Relationship of Corrective Measure, Single-Shell Tank Waste Retrieval, and Long-Term Closure Activities



Additional interim corrective measures may be required to further limit the potential for contaminants to migrate to the groundwater if the tanks or tank farms are determined to be a continuing source of groundwater contamination or a source of continuing contamination resulting from waste retrieval. These measures will be evaluated to identify the balance of near-term corrective measures needs with those of the long-term corrective action and closure requirements.

4.3.2 Waste Retrieval

Retrieving waste from SSTs is needed to reduce the threat of long-term risks to human health and the environment. However, waste retrieval, depending on the technology, could result in releases to the environment. The approach contained in this program plan begins with tanks that are not likely to leak, retrieval technologies that minimize the amount of liquid available for release, and a retrieval sequence that ensures the right amount and type of waste are available for immobilization from sound tanks. As experience is gained with retrieval technologies capable of retrieving waste from unsound tanks or tanks with hard-to-retrieve waste the program can proceed with completion of the retrieval mission.

4.3.2.1 Overview and Assumptions

This set of activities involves waste retrieval from the SSTs as required by the Tri-Party Agreement and its associated ROD (62 FR 8693). SST waste removal includes retrieving the waste from those tanks and transferring that waste to DSTs prior to waste immobilization. The details of the technical baseline for SST waste retrieval are provided in Appendix B. The SST retrieval technical approach within the scope considers the following:

- Potential operational leakage
- Tank waste forms
- Retrieval systems technology
- Fast-track retrieval systems development to support production retrieval
- SST waste retrieval sequencing.

The retrieved waste will be processed into low-activity and high-level waste radioactive immobilized glass forms for disposal.

As indicated in Section 3 the current Tri-Party Agreement milestones for SST waste processing are currently being renegotiated to reflect changes in the contract between DOE and BNFL, Inc. for Phase I waste immobilization. These changes affect the schedule for SST waste retrieval. Assuming (1) that Phase I waste processing will begin in FY 2006 and conclude in FY 2018 and (2) that Phase II waste processing will not begin until FY 2018 also further impacts the schedule for SST waste retrieval based on the production impacts of immobilization facilities and constraints on SST waste retrieval imposed by the availability of DST space to accept waste transfers from SSTs. If waste processing capacity and DST storage space is not available then waste cannot be retrieved from SSTs at a rate necessary to complete SST waste retrieval in FY 2018. The SST Program is based on a technically defensible approach to SST waste retrieval that assumes the schedule for Phase I will be modified to span from FY 2006 to 2018 and that Phase II will commence in FY 2018. The SST Program approach also assumes that during Phase I waste will be processed at an average rate of approximately 1,100 metric tons of low-activity waste per year from 2006 through 2018 and that Phase II will result in expansion of waste processing capacity to approximately 2,200 metric tons of low-activity waste per year.

The schedule for the definition, design, construction and operation of SST waste retrieval systems has been segregated into three distinct phases based on the above assumptions regarding support of waste feed delivery requirements (see Section 6 for details):

- Waste retrieval to support Phase I waste processing
- SST waste retrieval during Phase I to support backfilling DSTs that are retrieved to provide processing waste during Phase I with SST waste that will be used during the initial years of Phase II waste processing
- Waste retrieval to complete retrieval to the extent necessary to close tanks and tank farms and to support Phase II waste processing of the waste not processed during Phase I. A summary schedule is provided in Section 6 and a detailed schedule for SST Program activities to support waste retrieval is provided in Appendix B.

Current planning has identified 4 SSTs that will be retrieved to support Phase I waste processing assuming BNFL, Inc. is able to process low-activity waste at an average rate

of approximately 1,100 metric tons per year from 2007 to 2018. These tanks include the following:

- Tanks S-102 and S-105 (retrieval to provide low-activity waste feed)
- Tanks C-104 and C-107 (retrieval to provide high-level waste feed).

In the unconstrained planning schedule developed for FY 2000 the tank C-106 demonstration project will initiate waste retrieval in FY 2003. This retrieval action will involve a small volume of waste and allow demonstration of confined sluicing technologies as an alternative to sluicing that has a reduced risk of large volumes of leak loss and that may be required for waste retrieval from SSTs with past leak histories or with waste that cannot be retrieved using past-practice sluicing. The first production-level SST waste retrieval campaign is scheduled to begin in FY 2009 with retrieval actions in tanks C-104 and S-102. To support these retrieval actions design, acquisition, construction, and start-up and testing activity sequence need to begin in FY 2000 for capital projects. The remaining tanks providing Phase I waste feed—tanks C-107 and S-105—will be retrieved beginning in FY 2012 and 2015.

To support backfilling of DSTs emptied during Phase I, 15 SSTs have been identified for retrieval from FY 2012 to 2018. These retrieval actions design, acquisition, construction, and start-up and testing activity sequence need to begin in FY 2002 and continue through FY 2018.

To support waste retrieval from the remaining 130 SSTs beginning in 2018, the design, acquisition, construction, and start-up and testing activity sequence needs to begin in FY 2008. The technical approach presented in this plan is sufficiently robust to allow acceleration of Phase II waste retrieval if required.

Figure 4-6 illustrates the current planning baseline for SST waste retrieval based on the assumptions identified previously. Figure 4-6 illustrates the cumulative volume of waste retrieval attained by the current schedule for waste retrieval (expressed as a percentage of the total waste volume retrieved from the tanks) as well as the cumulative percentage of CoCs removed from SSTs resulting from the baseline retrieval schedule.

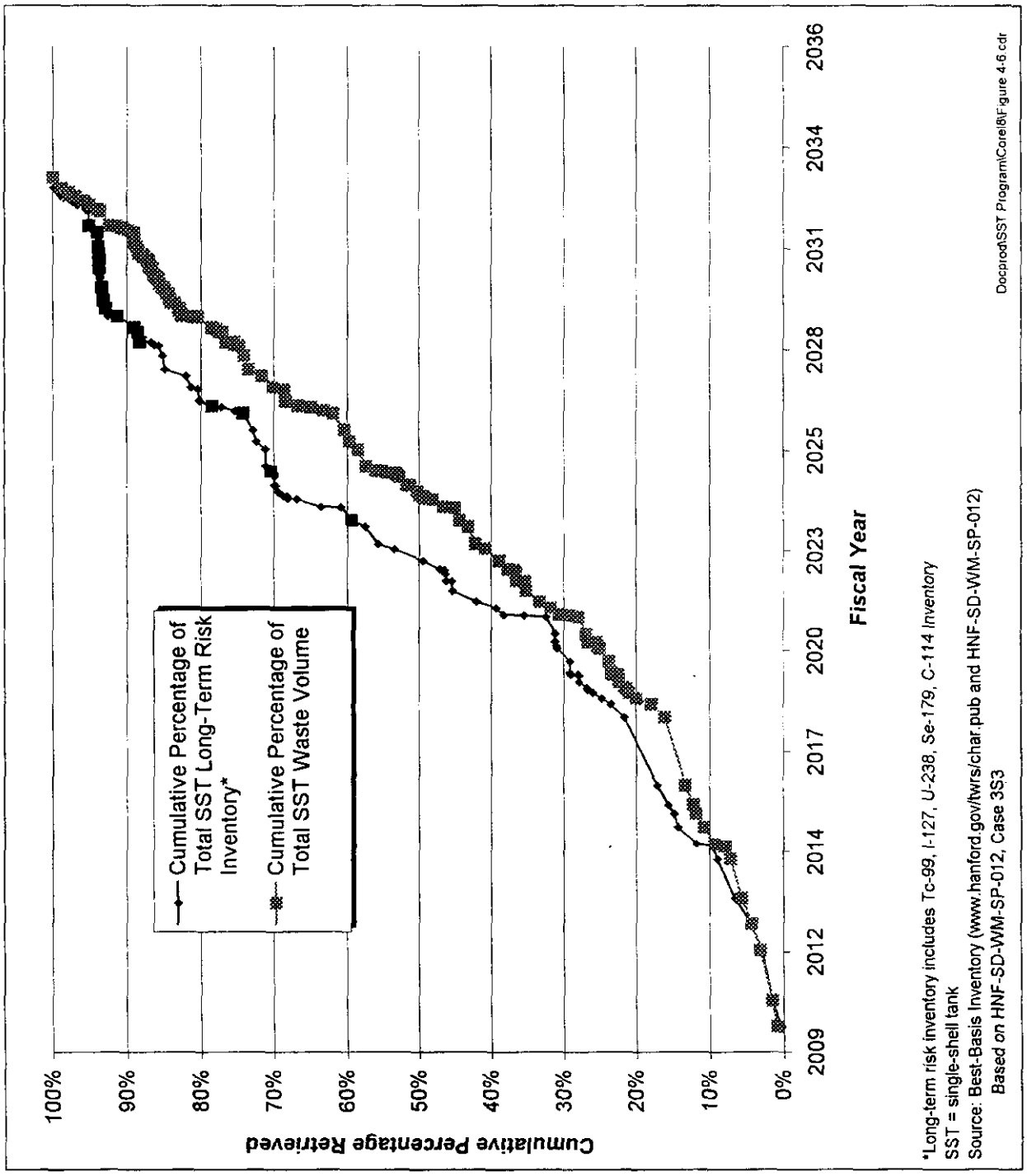
In addition to these schedule and planning assumptions, the following subsections describe technical constraints and issues that affect SST waste retrieval planning and implementation.

Potential Operational Leakage

The retrieval systems requirements are primarily impacted by the risks associated with leakage into the tank subsurface caused or exacerbated by damaging degraded tanks, by the waste form, and by the rates of retrieval. The structural soundness of the aging SSTs is of major concern. Some of the SSTs are over 50 years old and will be over 60 years old at the start of retrieval production (i.e., in 2010).

The retrieval technology used in the 1970s was hydraulic sluicing, which involves a substantial water pressure and liquid volumes. The combination of water under pressure, substantial liquid, and questionable tank integrity could cause liquid to leak out of existing or newly-formed cracks or holes in the steel liner. The more liquid available in a leaking tank, the larger the concern over further contaminating the subsurface and provide additional driving forces for existing contamination. The ideal retrieval system would be a dry retrieval system. However, no dry retrieval system identified to date can safely and rapidly remove tank contents without creating a significant particulate release problem.

Figure 4-6. Single-Shell Tank Waste Retrieval Cumulative Waste Volume and Long-Term Risk Reduction



Tank Waste Forms

By grouping tanks based on leakage history and type of waste (e.g., sound and salt cake waste), a specific type of retrieval technology can be designed and deployed for each group of tanks. Applying a single type of retrieval technology to a number of similar tanks should save time and money. Appendix A contains a spreadsheet that provides an initial basis for grouping the tanks. There are 82 tanks that have no measurable leaks. Of the remaining 67 tanks, all but 16 have leaked less than 10,000 gallons (HNF-EP-0182-134), which is less than a 4-inch drop in measurable liquid levels. Given the difficulty in estimating the height of a crust surface, uncertainty remains about the exact amount leaked in a number of these tanks cannot be specified. Grouping tanks by waste type results in the following:

- 47 tanks containing mostly salt cake
- 14 tanks containing a mixture of salt cake and sludge
- 88 tanks containing mostly sludge.

If the measure of risk to the public and environment is the amount of long-lived, mobile radionuclides (i.e., CoCs) then tanks can be grouped by contaminant of concern. Contaminant of concern Tc-99 is found primarily in salt cake tanks. Of the approximately 20,000 curies of Tc-99 believed to be in SSTs, 65% of the curies are in salt cake tanks and 12% are in sludge tanks. The remaining 23% of the curies of Tc-99 are in the salt cake with sludge mixed waste tanks (HNF-SD-WM-TI-740). Therefore, retrieval of sound salt cake tanks will reduce the potential for Tc-99 releases to the environment. Because numerous uncertainties remain about SST leak integrity, SST waste retrieval operations will begin with those SSTs posing a low risk of adding liquids to the subsurface. This technical approach will allow for near-term retrieval of SST wastes to reduce risk and provide initial waste feed while not foreclosing other technical alternatives.

Waste Retrieval Systems and System Development

Production retrieval that relies solely on water-based retrieval technology could introduce leakage of new contaminants and could drive current subsurface contamination deeper toward the groundwater, thus exacerbating past release impacts and imposing more expensive and higher-risk closure requirements. Dry retrieval technology may be necessary for the SSTs that have had extensive leakage.

Concerns about subsurface contaminant migration increase the need to understand subsurface properties and past leak spatial configuration and behavior so impacts of further leaks during production retrieval can be understood. If serious subsurface migration of CoCs is likely, then leakage during production retrieval will influence selection of waste retrieval technology.

Several technologies need to be investigated because of the potential leakage problems, different waste forms, tank conditions, congestion resulting from miscellaneous hardware in the tanks, and limited access.

Because of the amount of waste in the SSTs, retrieval will likely take many years. Development of the waste retrieval systems will require planning, technology evaluation, cold and hot demonstrations, and equipment design selection and deployment to support production retrieval. The retrieval systems must demonstrate robust operability and maintainability to reliably meet the required feed rates that assure continuity of feed

delivery to the pretreatment and immobilization facilities. All of these activities have long lead times and will require sufficient resource commitments beginning in FY 2000 to support the implementation schedule for the immobilization facilities. Near-term required activities are delineated in Section 4.3.2.2. After experience with promising retrieval technologies and a better understanding of tank waste contaminant migration through the subsurface via the RCRA corrective measures work, SST waste retrieval will move into a production mode.

Waste Retrieval Sequencing

Waste will be retrieved from the SSTs in a specific tank-by-tank sequence to balance several factors:

- Optimizing waste composition for feed delivery to immobilization facilities
- Production rates of the immobilization facilities
- DST space for staging SST waste
- Potential for leakage loss
- Reduction of near-term and long-term human health and ecosystem threats
- Infrastructure limitations.

Each of these factors is an important part of the waste retrieval sequence decision. Interim tank waste retrieval sequence planning will be completed based upon the best available data to support the most recent waste retrieval and immobilization planning. However, a final waste tank retrieval sequence cannot be established until final decisions are made relevant to each of the factors. The technical approach contained in this plan is directed toward acquiring the data needed to support the sequence decision.

Cost

Current estimates for SST waste retrieval are more than 10 times the target retrieval cost estimates established 4 years ago ($80 million per tank versus $8 million per tank). The $8 million figure is consistent with recent Oak Ridge National Laboratory experience in retrieving light sludge waste from Gunite and associated tanks and more than 3 times the estimate used for planning purposes in the multi-year work plan for FY 1999 (Table 4-2). The $80 million estimate is consistent with waste retrieval cost experience for tank C-106 sludge removal using past-practice sluicing and estimates developed for tank C-104 waste retrieval for Project W-523 (TWR-4454). According to the assumptions used in the Project W-523 alternative generation analysis deployment of past-practice sluicing is assumed to achieve retrieval of 85% of the waste in tank C-106. If this assumption is correct and waste must be retrieved to 360 ft^3 to meet the interim Tri-Party Agreement waste retrieval goal, a second technology will need to be deployed and additional funds beyond the $70 to $140 million estimate for the past-practice sluicing deployment will be required. The substantial increase in the cost estimate for past-practice sluicing and the potential need to conduct a second technology deployment could result in a large increase in the life cycle cost of the SST and MUST waste retrieval activities unless more cost-effective, single-entry retrieval systems can be used.

Table 4-2. Retrieval Cost Estimates Per Tank

Basis of Estimate	Cost Per Tank (in millions of dollars)
FY 1994 per-tank cost estimate (PPS)	8
Project W-320 (PPS)	90
Project W-523 Alternatives Generation and Analysis cost estimate for tank C-104	70 to 140 depending on method
Current tank C-106 retrieval demonstration cost estimate	33

FY = fiscal year
PPS = past-practice sluicing

Because of the potential cost liabilities the SST Program will need to identify, test, design, acquire, and construct systems that meet waste retrieval performance goals based on a single deployment and that cost less than current Hanford Site experience and projected costs for near-term SST waste retrieval activities. The need for technology development is critical in the near term (over the next 1 to 5 years) because design and construction activities will begin in FY 2000 through FY 2004 for SST waste retrieval needed to support Phase I waste processing. Cost risks posed by past practice sluicing could be mitigated if a single-entry, low-water-volume retrieval method is proven effective for Hanford Site tank waste retrieval.

4.3.2.2 Near-Term Single-Shell Tank Waste Retrieval Project Activities (FY 2000 to FY 2008)

Retrieval of a variety of SST waste forms from tanks with varying conditions will require evaluation and testing of a number of alternate waste retrieval technologies. The SST Program will initiate a technology evaluation and testing effort beginning in FY 2000 to support this requirement. The initial phase of this effort (in FY 2000 through FY 2001) will focus on the following:

- Assessing tank conditions
- Collecting data on tank waste forms
- Identifying viable and available retrieval technologies
- Identifying viable and available leak detection technologies
- Identifying process improvements that will result in cost and schedule improvements for the program
- Establishing performance criteria for SST waste retrieval systems using methodologies established through DOE/RL-98-72.

This phase of the work will incorporate available data regarding tank waste inventory and subsurface contamination into the SST Program planning process. The technology evaluation phase will also include integration with the SST waste retrieval sequencing activity to ensure consistency between SST Program planning and implementation and Phase I waste feed delivery requirements.

The technology evaluation phase will culminate in FY 2001 with a Test and Evaluation Plan that will identify which technologies are ready for immediate deployment in support of waste retrieval and which technologies require cold and hot testing and demonstration prior to selection for design, construction and operations.

This testing and evaluation phase is scheduled to begin in FY 2001 with the development of a SST Waste Retrieval Program Test and Evaluation Plan followed by development of test and demonstration specifications. It is currently anticipated that the test and evaluation phase of the project will require the acquisition of cold test capacity to ensure cost-effective testing of up to seven technologies. Six candidate technologies (excluding the currently scheduled retrieval demonstration in tank C-106) will enter a program of cold and hot testing prior to retrieval demonstration in SSTs. These technologies include:

- Salt cake dissolution
- Confined sluicing
- Salt cake/Sludge removal
- Dry retrieval
- Confined and limited access removal
- MUST waste retrieval.

Following the completion of testing and evaluation, technologies determined to be appropriate for supporting the SST and MUST waste retrieval mission will be evaluated in a retrieval system alternative generation analysis that is currently scheduled for completion in FY 2006. Based on the results of the alternative generation and analysis and a integrated risk analysis to determine tank-by-tank retrieval system performance criteria, a deployment plan will be prepared that will determine which technologies should be deployed on a tank-by-tank basis to support the SST waste feed delivery schedule. This plan will also initiate design, acquisition, construction, and start-up and testing activities in support of waste retrieval in FY 2008. The sequence of activities will be based on waste feed delivery requirements and attainment of other retrieval system goals including cost minimization, infrastructure system needs, tank conditions, and risk reduction.

This approach to SST and MUST waste retrieval will result in cost-effective and environmentally sound retrieval systems designed to address the challenges of SST and MUST waste retrieval for tanks scheduled for backfilling DSTs during Phase I (15 tanks from FY 2012 to 2018) and Phase II waste retrieval (130 tanks from FY 2018 to 2033). Promising technologies will also be demonstrated on SSTs scheduled for retrieval in support of Phase I waste feed requirements (4 tanks from FY 2003 to 2014).

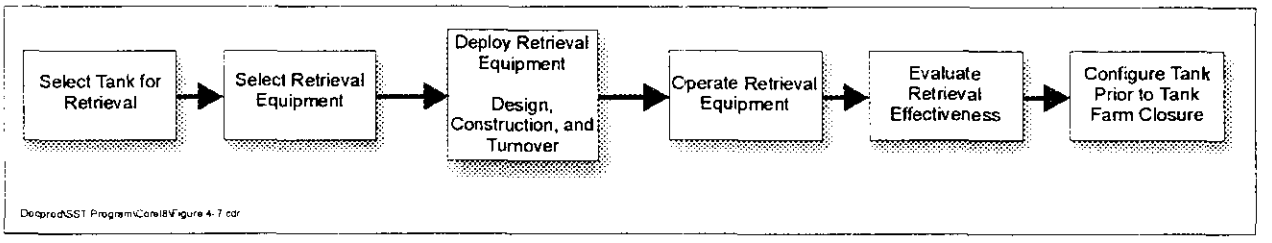
Where alternate technologies are not currently available, early retrieval actions will focus on sound tanks to limit potential releases to the environment while alternative technologies are being evaluated for use by the SST Program. These early retrieval actions, along with retrieval demonstrations, will meet program needs through much of Phase I and provide operational experience for Phase II. It will also allow time to develop and deploy tank-specific retrieval technology strategies for much of the retrieval actions needed to support backfilling of DSTs and waste retrieval during Phase II.

4.3.2.3 Long-Term Waste Retrieval Project Activities (FY 2009 to FY 2035)

The near-term activities described in the previous section will result in the selection of retrieval technologies for deployment in support of the waste retrieval mission and the identification of which technologies will be developed for deployment on a tank-by-tank basis during the remainder of Phase I retrieval activities. The activities will also result in selection of the retrieval actions supporting Phase II waste processing. Based on the deployment plan and the updated SST Program Plan the SST

Program will enter into a production retrieval phase that will last from 2009 through 2032. The activities that will be completed during this phase of the project are illustrated in Figure 4-7 and include the following:

Figure 4-7. Production Retrieval Activity Sequence



- **Deployment of Retrieval Equipment**—Based on the mission performance criteria, tank retrieval sequence, and retrieval equipment evaluation and selection phase of the program tank-by-tank efforts will be initiated to ensure successful deployment of the selected technologies to support retrieval operations. Equipment deployment will require the completion of a number of activities including:
  - Project definition and conceptual and definitive design for retrieval, leak detection and monitoring, and infrastructure activities required for each tank. This activity includes completion of specification of functions and requirements, systems configuration, value engineering, safety assessments, interface control documents, operations and maintenance requirements, test and evaluation plans, and validation testing.
  - Acquisition and construction of retrieval, leak detection and monitoring, and infrastructure equipment and systems defined in the design phase. This activity includes completion of acquisition strategies, construction documentation, configuration management, acceptance documentation, transition plans, system design, and management and engineering processes.
  - Turnover of retrieval, leak detection and monitoring, and infrastructure equipment and systems constructed to meet design specifications. This activity includes validation, interface control documentation, acceptance documentation, test and start-up plans, and transition plans.
- **Retrieval Operations**—Following completion of the deployment phase of the project (an 8- to 10-year process under the DOE capital projects process) waste retrieval operations can be initiated. This phase of the project includes execution of operations and maintenance plans, integrated safety management, monitoring, and response actions based on performance objectives, regulatory compliance, and management of operational capacity (e.g., DST space, personnel, infrastructure). The operations phase of the project can take from a few months to several years depending on the technologies deployed, retrieval objectives, operational constraints, and the volume and form of the waste.

- **Evaluate Effectiveness**—The effectiveness of the retrieval action must be evaluated when operations have been completed. This evaluation includes assessment of the systems performance (e.g., leakage losses, residual waste volume and characteristics, equipment effectiveness), execution of the test and evaluation plan, development of acceptance documentation, and development of transition and decommissioning plans. If the evaluation concludes that additional retrieval activities are required, existing retrieval equipment could be used or alternative retrieval technologies may be deployed until performance criteria is satisfied. If a new technology is required the process of technology evaluation and selection and design and construction could add many years to the overall schedule for completion of SST waste retrieval. If the evaluation determines that the retrieval performance criteria is satisfied. The tank would then be configured to support tank farm closure.
- **Configure for Tank Farm Closure**—This activity includes development of a turn-over plan, completion of interface control and *National Environmental Policy Act* and regulatory compliance documentation, and design, construction and testing of equipment and strategies for completion of closure requirements. This activity will be coordinated with the SST Program Closure and Corrective Measures Group (see Section 4.3.3).

4.3.3 Tank Farm Closure

The Tri-Party Agreement, *Hazardous Waste Management Act*, TWRS EIS (DOE/EIS-0189), and the associated ROD (69 FR 8693) concluded that waste retrieval of SST wastes must be complete before tanks and tank farms are closed. The current technical approach is to initially retrieve waste to levels established by cost constraints, the limits of technology, and in a manner that does not result in the release of contaminants that pose an unacceptable threat to human health and the ecosystem. Production retrieval will begin to support the immobilization waste feed stream upon successful demonstration of waste retrieval technologies. Additional retrieval actions may be needed to retrieve residual waste to levels established through a closure process once final retrieval performance criteria are established. This approach allows waste retrieval to begin while retrieval technologies are being developed and deployed and while closure criteria are being established. The closure process involves the following:

- Developing an improved understanding of contaminant migration
- Developing an improved understanding of cumulative risks to future receptors from all 200 Area waste sites
- Resolving regulatory compliance issues
- Completing a tank farm closure EIS and ROD
- Completing a dangerous waste regulation closure work plan
- Implementing and completing closure activities
- Modifying the Hanford Site RCRA permit
- Implementing post-closure care and monitoring.

Closure implementation activities include the following:

- Perform component-level systems engineering and detail design
- Select and qualify closure materials

- Perform detail design of closure methods for tank farms, individual tanks, and surface and subsurface soils
- Conduct design reviews and requirements verification
- Coordinate technical interface with Ecology and the U.S. Environmental Protection Agency
- Develop procurement specifications and procure closure material and equipment
- Construct closure systems in accordance with detail design
- Remove, dismantle, demolish, decontaminate, and otherwise dispose of ancillary equipment, piping, valves, and other material and equipment within the tank farm boundaries
- Inspect and test closures
- Perform readiness reviews and tank farms turnover for post-closure monitoring.

Post-closure care and monitoring activities include the following:

- Perform groundwater monitoring and reporting
- Maintain waste containment system
- Implement security requirements to prevent disturbance of final cover and monitoring system integrity.

5.0 WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure (WBS) is the framework for organizing RPP work. The SST Program WBS is consistent with the RPP life-cycle requirements and responds to the functions and requirements identified in the RPP Technical Baseline. The WBS divides the Tank Waste Operations and Retrieval and Disposal portions of the RPP work scope into functional areas or programs identified by a unique Project Baseline Summary number (e.g., Retrieval is Project Baseline Summary TW04).

The Tank Waste Operations mission has been assigned responsibility for Characterization (TW01), Safety Issue Resolution (TW02), and Tank Waste Operations (TW03).

Retrieval and Disposal has been assigned responsibility for Phase I work scope in Waste Retrieval (TW04), Privatization Infrastructure (TW08), and Immobilized Tank Waste Storage and Disposal (TW09).

The RPP has also been assigned the managing and integrating vendor interface component of the Process Waste Support Project Baseline Summary (TW05). Other components of the WBS are assigned to DOE (TW06) or to private contractors (TW07).

Table 5-1 provides the SST Program WBS responsibilities, summarizes the organizational responsibility for the WBS Level 3 (Project Baseline Summary), Level 4 (Function), Level 5 (Activity), and Level 6 (Cost Account). The detailed WBS for SST Waste Retrieval System Definition and Implementation and Hanford Tanks Initiative are provided in Appendix B. The detailed WBS for the Tank Farm Closure and Corrective Measures and Tank Farm Vadose Zone are provided in Appendix C.

Table 5-1. Single-Shell Tank Program Work Breakdown Structure Responsibilities

PBS #	PBS Description	Activity #	Activity Description	Cost Account #	Work Scope Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval	TW04.01.02.01	SST Waste Retrieval Project Management
				TW04.01.02.02	SST Waste Retrieval System Definition
				TW04.01.02.03	SST Waste Retrieval Systems Demonstrations
				TW04.01.02.04	SST Waste Retrieval Projects Definition
				TW04.01.02.05	Hanford Tanks Initiative
				TW04.01.02.06	SST Technologies and Assessments
				TW04.01.02.09	Phase I SST Operations
				TW04.01.02.11	Characterization
				TW04.01.02.12	Safety Basis
				TW04.01.02.13	W-523
		TW04.01.03	D&D Tank Farm Facility	TW04.01.03.01	Closure and Vadose Zone Project Management
				TW04.01.03.02	Closure System Definitions
				TW04.01.03.03	Vadose Zone Activities

D&D = decontamination and decommissioning
PBS = Project Baseline Summary
SST = single-shell tank

6.0 SCHEDULE

The planning baseline schedule for the SST Program includes the following activities:

- Those required to evaluate, test, select, design, construct, and operate waste retrieval systems
- Those required to determine the nature and extent of past tank leaks and evaluate, select, and implement corrective actions
- Those necessary to evaluate, design, construct, and monitor and maintain closure systems for SSTs, MUSTs, and DSTs.

Summary schedules for these aspects of the SST Program are provided in Figures 6-1 through 6-5.

6.1 Waste Retrieval and Technology Development

The schedule for the definition, design, construction, and operation of SST and MUST waste retrieval systems has been segregated into three distinct phases to support waste feed delivery requirements:

1. Waste retrieval to support Phase I waste processing (see Figure 6-1)
2. SST waste retrieval during Phase I to support backfilling DSTs that are retrieved to provide processing waste during Phase I with SST waste that will be used during the initial years of Phase II waste processing (see Figure 6-2)
3. Waste retrieval to support the remainder of Phase II waste processing (see Figure 6-3).

A detailed schedule for SST Program activities to support waste retrieval is provided in Appendix B. Current planning has identified five SSTs that will be retrieved to support Phase I waste processing assuming BNFL, Inc. is able to process low-activity waste at an average rate of approximately 1,100 metric tons per year from 2006 to 2018. These tanks include tank C-106 for retrieval of residual waste remaining following completion of past-practice sluicing, tanks S-102 and S-105 for retrieval to provide low-activity waste feed, and tanks C-104 and C-107 for retrieval to provide high-level waste feed.

In the baseline schedule the tank C-106 retrieval demonstration project will initiate waste retrieval in FY 2002. This retrieval action will involve a small volume of waste and allow demonstration of low-volume, confined sluicing technologies that may be required for waste retrieval from SSTs with past leak histories or with waste that cannot be retrieved using past-practice sluicing. The first large volume SST waste retrieval campaign is scheduled to begin in FY 2009 with retrieval actions in tanks C-104 and S-102. Design, acquisition, construction, and start-up and testing need to begin in FY 2000 to support these retrieval actions. The remaining tanks providing Phase I waste feed, waste retrieval tanks C-107 and S-105 will begin in FY 2012 and FY 2015.

Fifteen SSTs have been identified for retrieval from 2012 to 2018 to support backfilling of DSTs emptied during Phase I. Design, acquisition, construction, and start-up and testing need to begin in FY 2002 and continue through FY 2018 to support these retrieval actions. Design, acquisition, construction, and start-up and testing need to begin in FY 2008 to support waste retrieval from the remaining 130 SSTs beginning in FY 2018.

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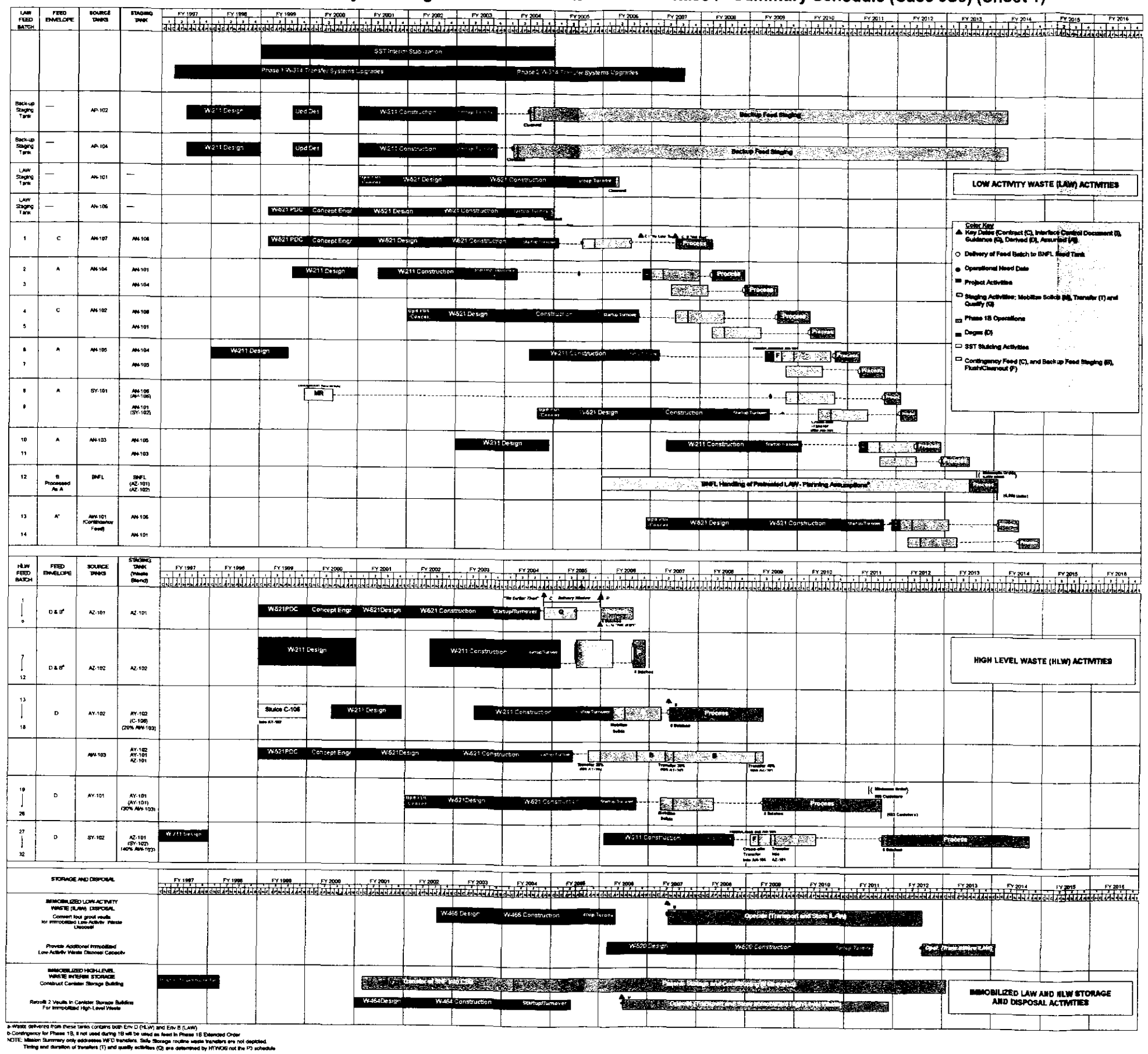
Figure 6-1. Waste Feed Delivery and Single-Shell Tank Waste Retrieval Phase I - Summary Schedule (Case 3S3) (Sheet 1)



a-Waste delivered from these tanks contains both Env D (HLW) and Env B (LAW)
b-Contingency for Phase 1B, it not used during 1B will be used as feed in Phase 1B Extended Order
NOTE: Mission Summary only addresses WFD transfers. Safe Storage routine waste transfers are not depicted.
Timing and duration of transfers (T) and quality activities (Q) are determined by HTWOS not the P3 schedule

Modified from LMHC Graphic

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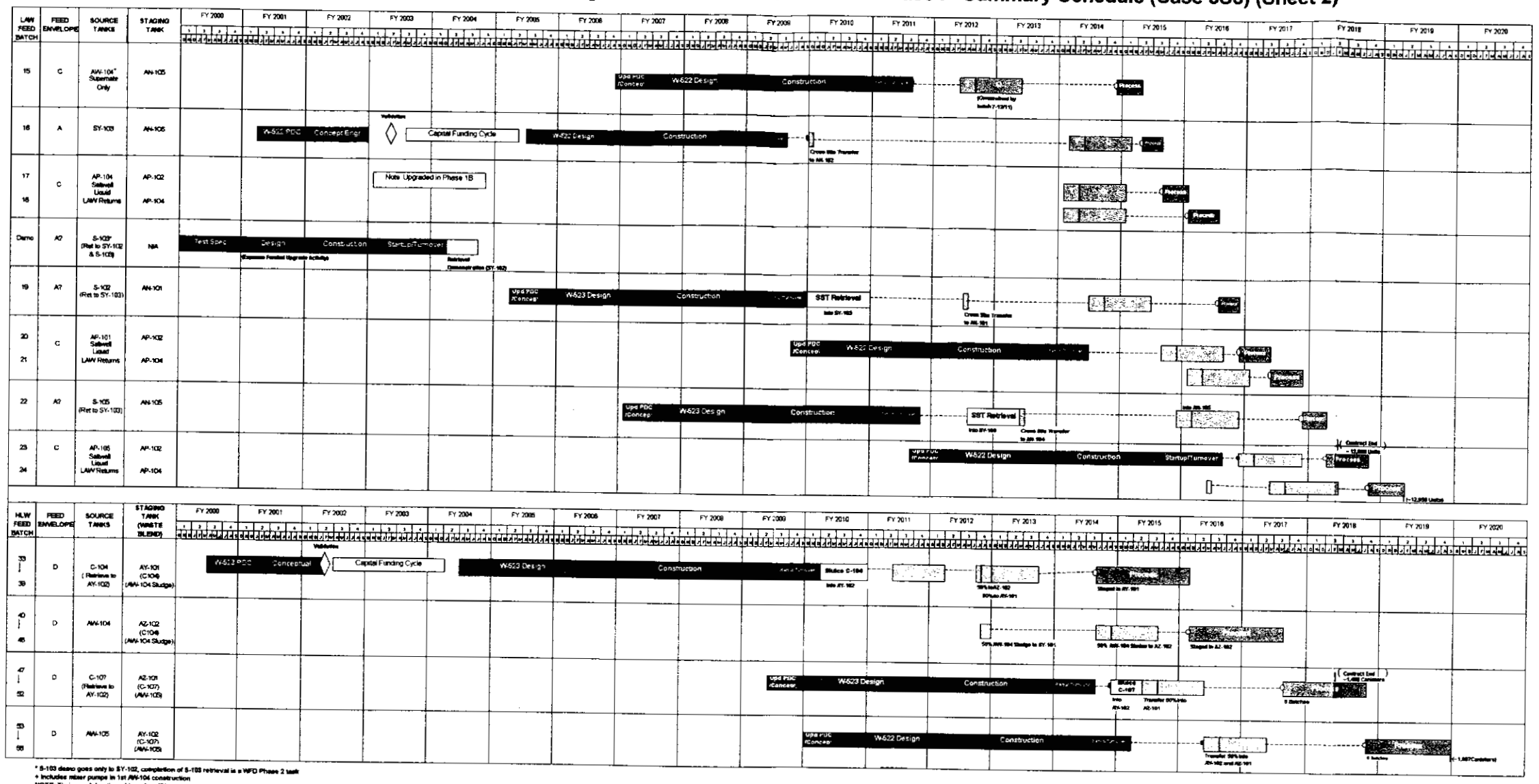
Figure 6-1. Waste Feed Delivery and Single-Shell Tank Waste Retrieval Phase I - Summary Schedule (Case 3S3) (Sheet 2)



* S-103 demo goes only to SY-102, completion of S-103 retrieval is a WFD Phase 2 task
+ Includes mixer pumps in 1st AW-104 construction
NOTE: Timing and duration of transfers (T) and quality activities (Q) are determined by HTWOS not the P3 schedule

Modified from LMHC Graphic

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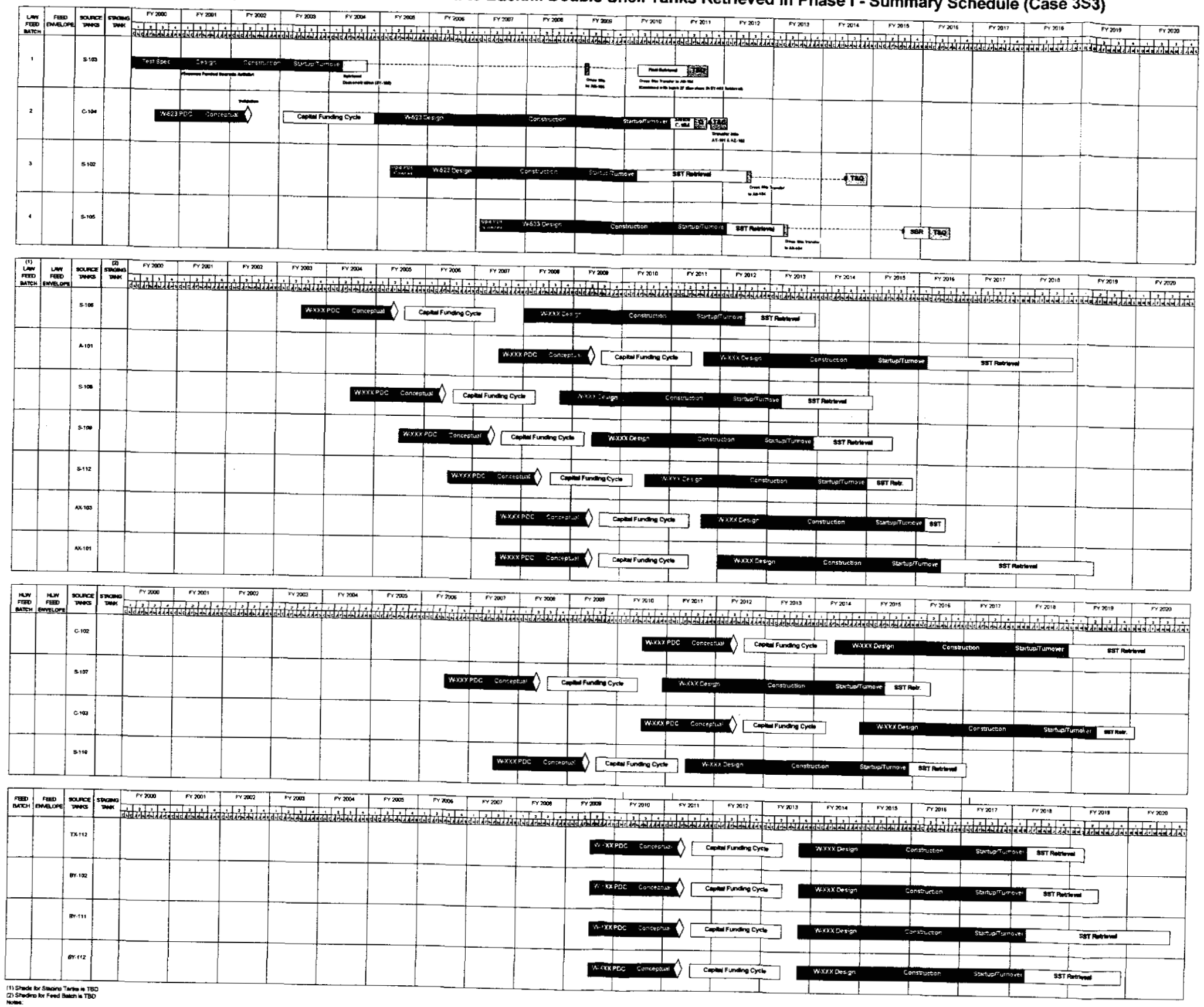
Figure 6-2. Single-Shell Tank Waste Retrieval to Backfill Double-Shell Tanks Retrieved in Phase I - Summary Schedule (Case 3S3)



(1) Shade for Staging Tanks is TBD
(2) Shading for Feed Batch is TBD
Notes:
- Does not reflect resolution of conflicts between construction & retrieval
- Does not reflect potential DST utilization issues
- Does not reflect post 2018 retrievals required to start after 2009

Modified from LMHC Graphic

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

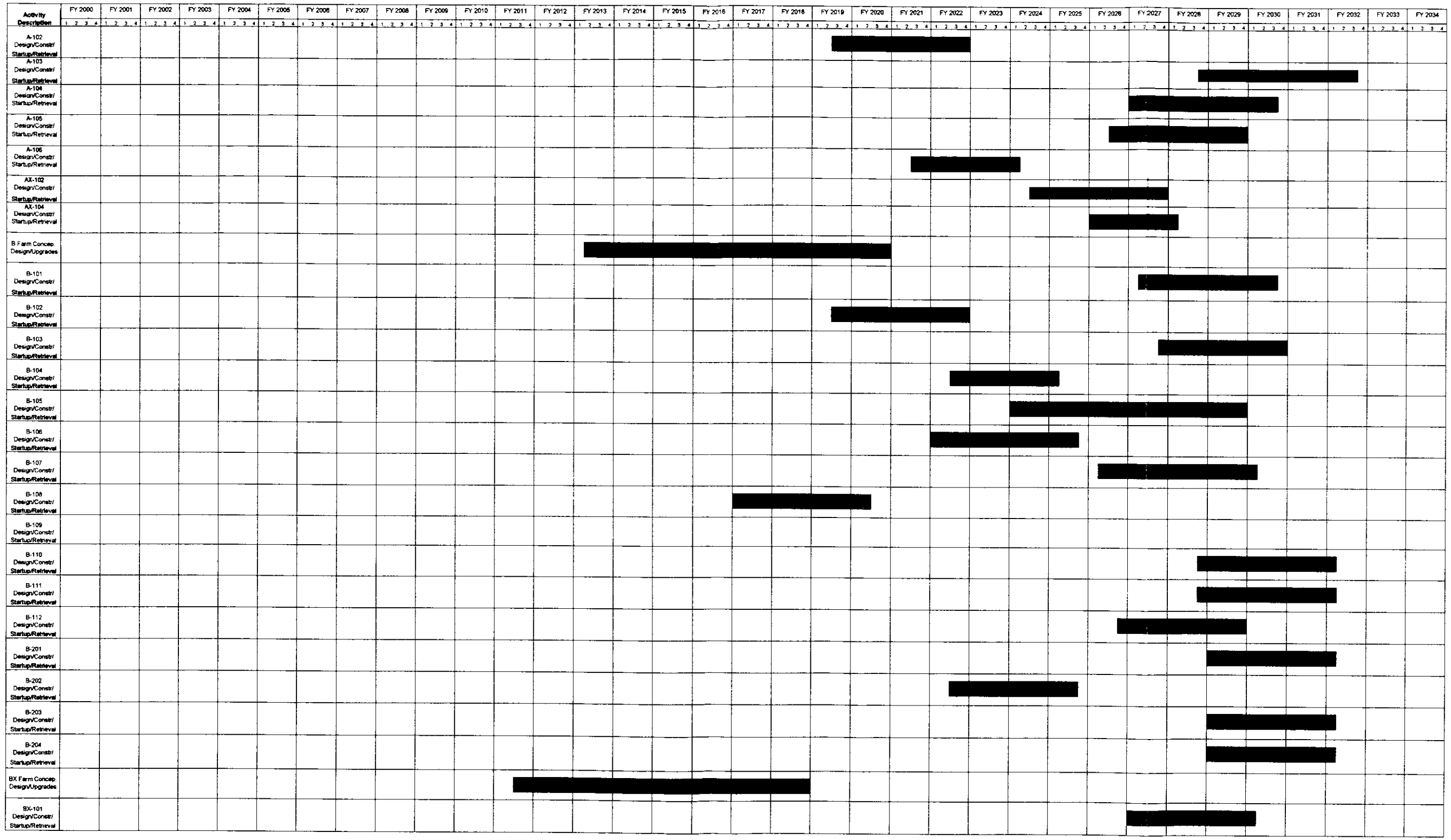

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

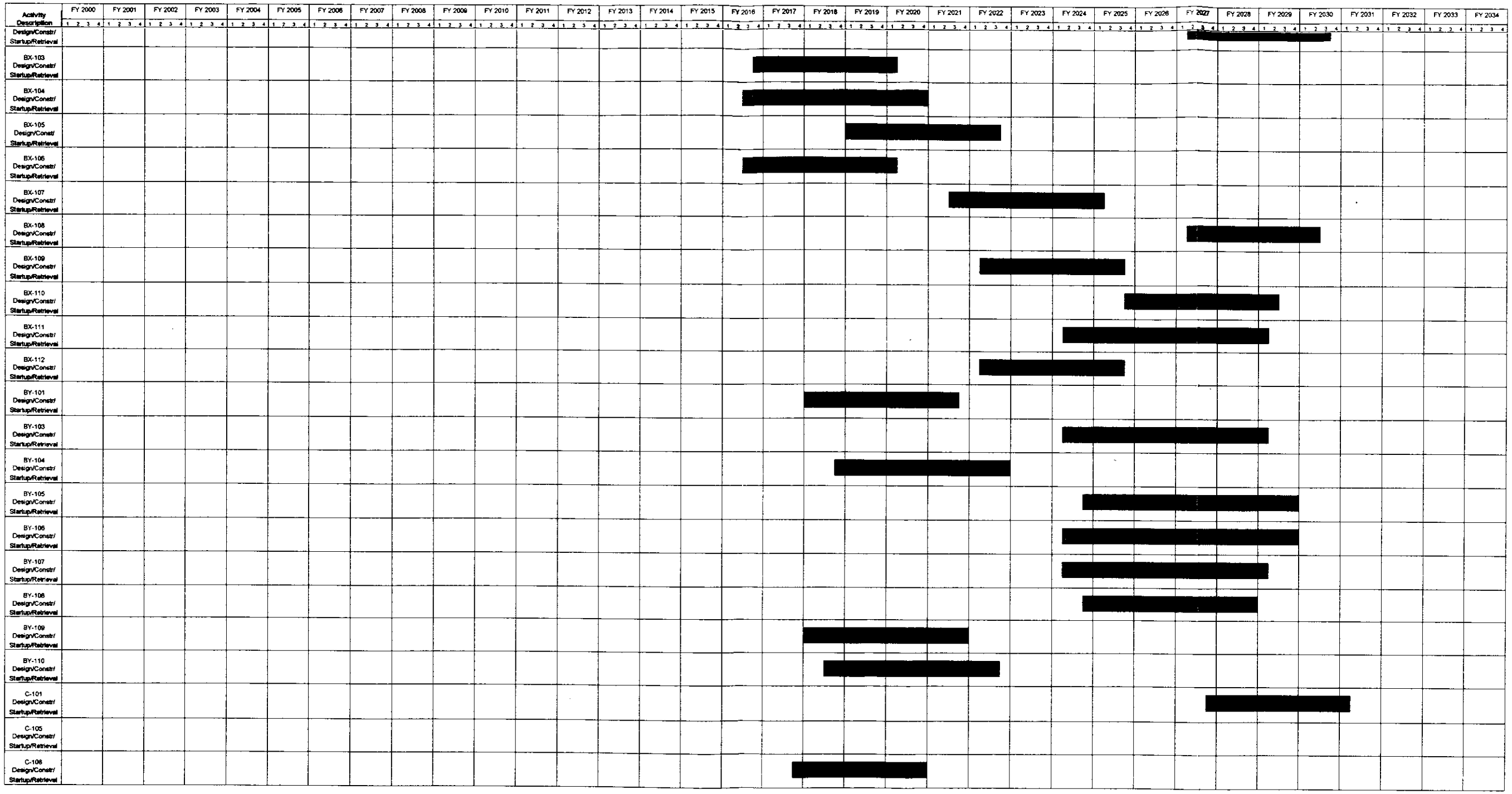

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

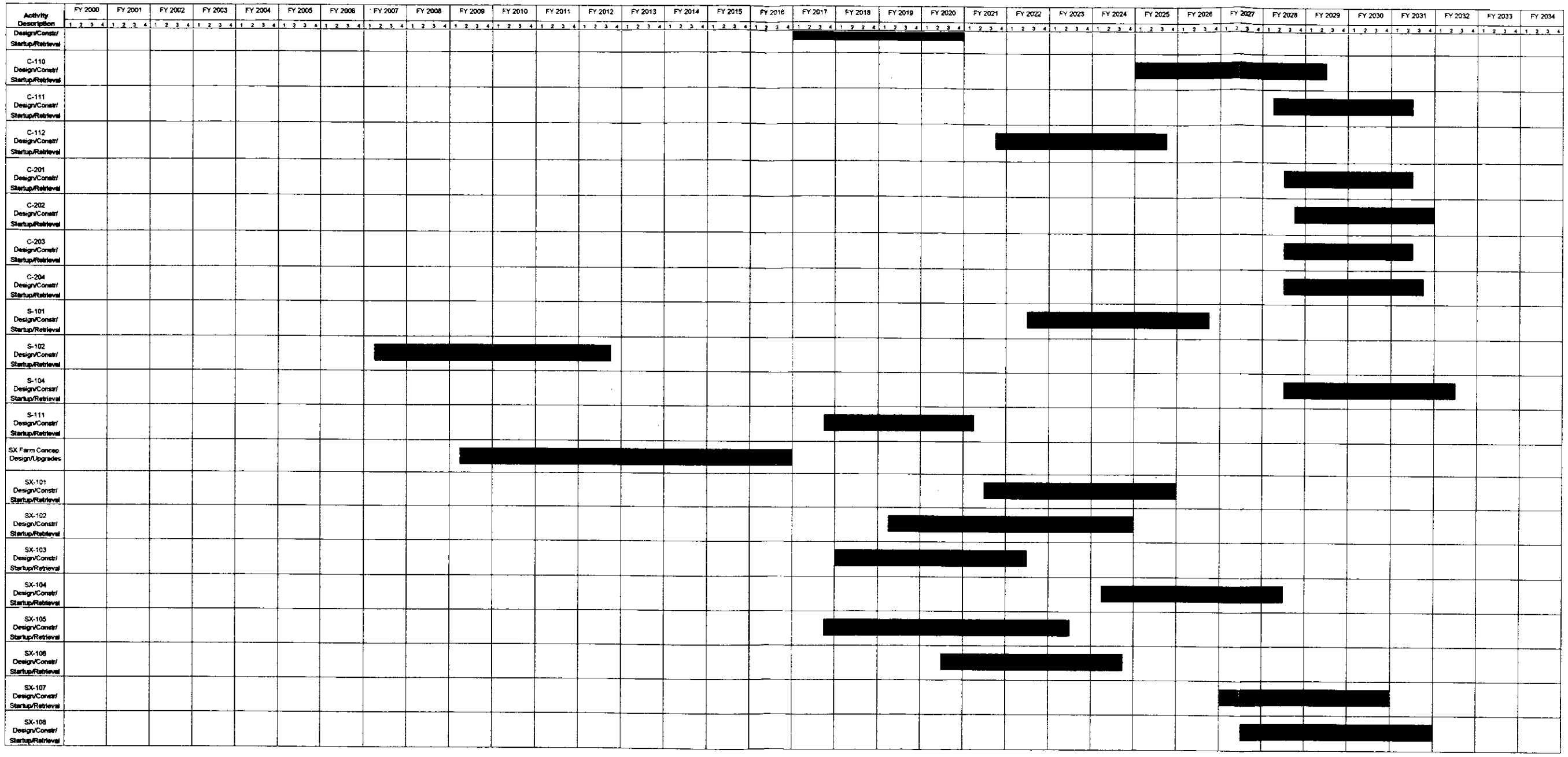

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

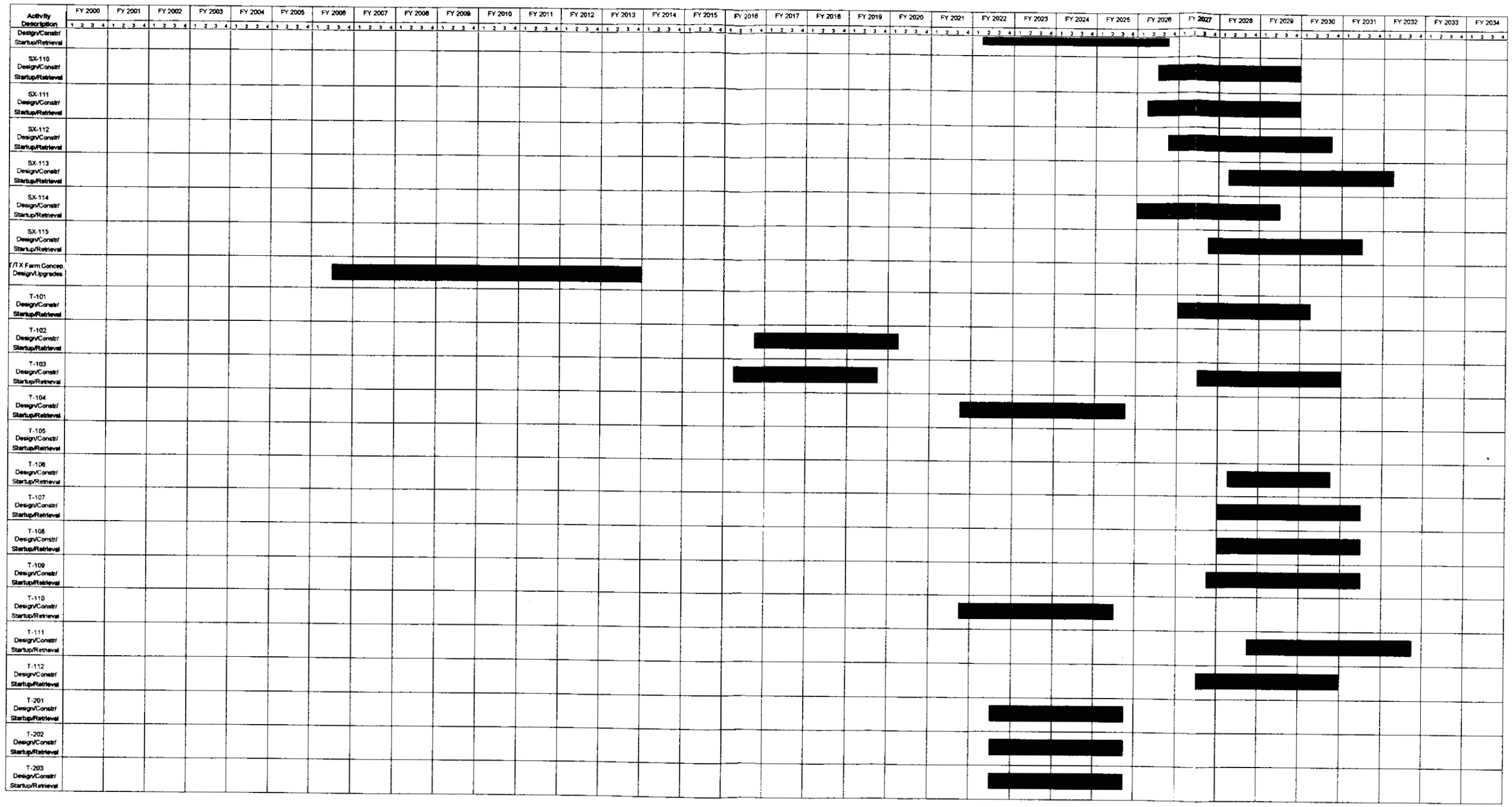

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

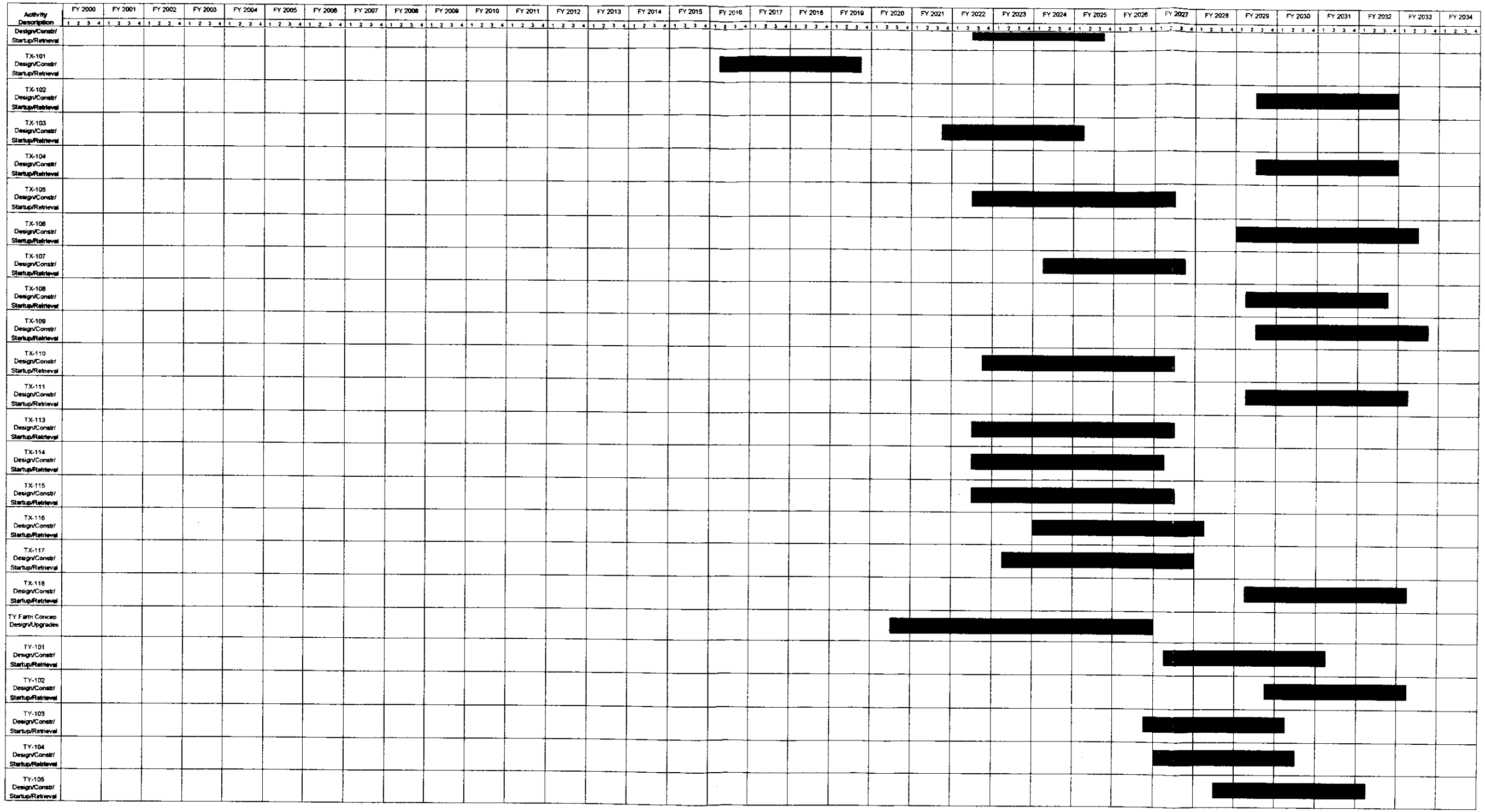

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Figure 6-3. Phase II Single-Shell Tank Waste Retrieval for Waste Feed Delivery

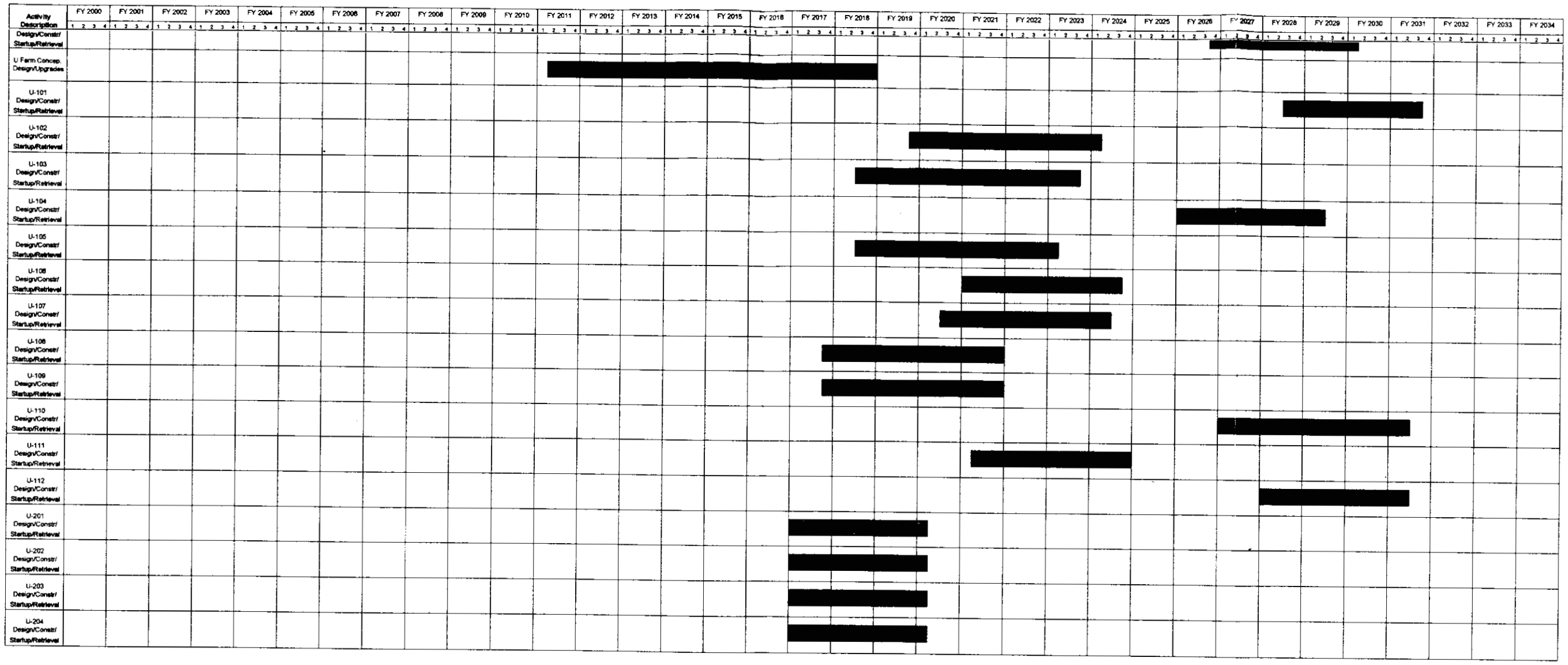

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Figure 6-4. Vadose Zone

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Figure 6-4. Vadose Zone

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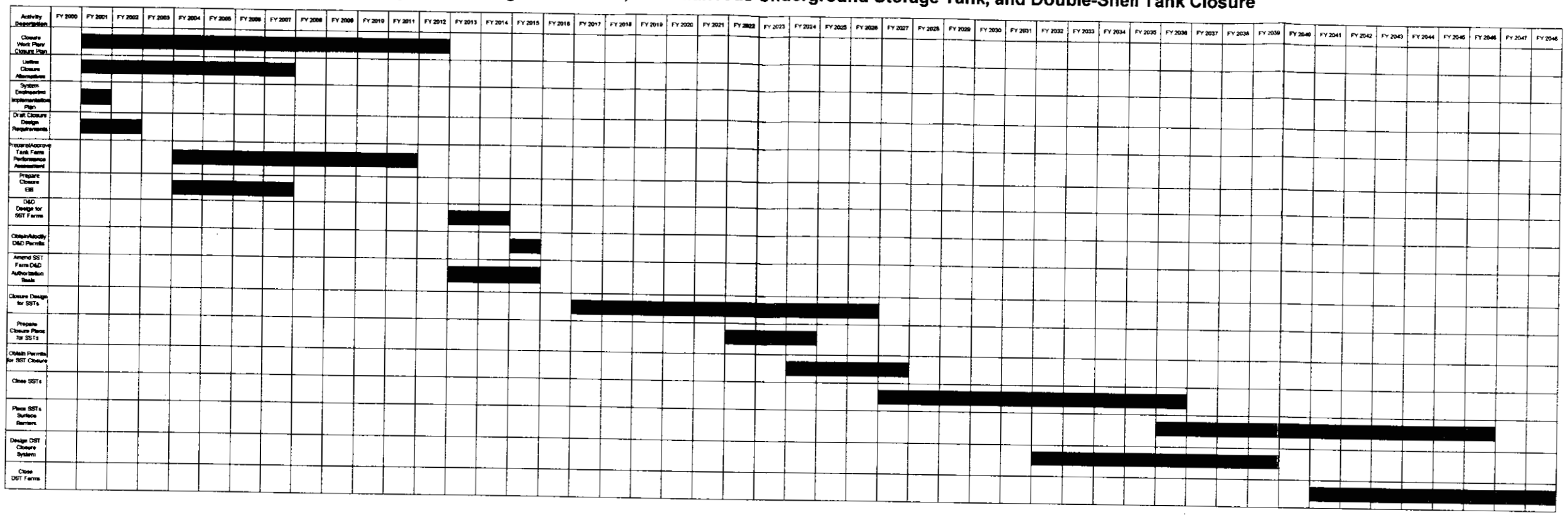
Figure 6-5. Single-Shell Tank, Miscellaneous Underground Storage Tank, and Double-Shell Tank Closure



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Development of waste retrieval technologies needed to retrieve a variety of SST and MUST waste forms from tanks with varying conditions (see Section 4) will require the SST Program to evaluate and test a number of alternate waste retrieval technologies. The SST Program will initiate a technology evaluation and testing effort beginning in FY 2000 to support this requirement. The initial phase of this effort will be focused on the following:

- Assessing tank conditions
- Collecting data on tank waste forms
- Identifying viable and available retrieval and leak detection technologies
- Identifying process improvements that will result in cost and schedule improvements for the program
- Establishing performance criteria for SST waste retrieval system performance.

This phase will culminate in FY 2001 with a test and evaluation plan that will identify (1) which technologies are ready for immediate deployment in support of waste retrieval and (2) which technologies require cold and hot testing and demonstration prior to selection for design, construction, and operations. This testing and evaluation phase is scheduled to begin in FY 2001 and continue through FY 2006. It is currently anticipated that up to seven technologies will require testing and evaluation (see Section 4) including the currently scheduled retrieval demonstration in tank C-106. Following the completion of testing and evaluation, technologies determined to be appropriate for supporting the SST waste retrieval mission will be included in a deployment plan that will determine which technologies should be deployed on a tank-by-tank basis to support the environmentally sound and cost-effective retrieval of SST waste on a schedule that supports waste feed delivery requirements. This plan will then be used to support initiation of design, acquisition, construction, and start-up and testing activities in support of waste retrieval.

As indicated in Section 4, early retrieval actions will focus on sound tanks to limit potential releases to the environment while alternative technologies are being evaluated for use by the SST Program. These early retrieval actions, along with retrieval demonstrations, will meet the program's need through much of Phase I allowing time to develop and deploy tank-specific retrieval technology strategies for much of the retrieval actions needed to support backfilling of DSTs beginning in FY 2012 and waste retrieval during Phase II beginning in FY 2018. Waste retrieval for Phase II would begin in FY 2018 and conclude in FY 2033.

6.2 Closure and Corrective Measures

The schedule for the definition, design, construction and operation of closure systems and investigations of subsurface contamination and implementation of potential corrective measures has been developed to support corrective measures and tank farm closure requirements (see Figures 6-4 and 6-5). A detailed schedule for SST Program activities to tank farm closure and corrective measures is provided in Appendix C. The current schedule for corrective measures is divided into two elements: (1) activities to support Phase I RFI/CMS studies at four WMAs and (2) RFI/CMS studies at the three remaining WMAs assuming that at some point in the future it will be determined that each of these WMAs will enter the RCRA corrective action process. The Phase I RFI/CMS studies at four WMAs were initiated in FY 1999 and are scheduled to conclude in FY 2004. At that time it will be determined

if additional field investigations are required or if corrective measures need to be evaluated and implemented to mitigate the migration of contaminants resulting from past tank leaks and spills within the tank farms. Data developed from this program will be available beginning in FY 2001 to support the informational needs of the corrective action, closure, and waste retrieval functions of the SST Program (see Section 4). For planning purposes it was assumed that the remaining WMAs would enter the RCRA corrective action process beginning in FY 2001 and that Phase I field investigation and corrective measures studies would also be completed for these WMAs in FY 2007.

The current planning schedule for closure of SSTs, MUSTs, and DSTs is closely tied to the activities planned for corrective measures, SST waste retrieval, and completion of waste processing. Closure system definition begins in FY 2000 with the revision of the closure work plan and progresses through definition of the closure system (including completion of technology testing and demonstrations) in FY 2007, the closure EIS in FY 2007, and completion of system specification, performance assessment, waste classification, and permitting in FY 2014. This schedule will support the initiation of design, acquisition, construction, and testing necessary to begin closure of the first SST farm in FY 2026 and complete closure of the first SST farm in FY 2028 and closure of the final SST farm in FY 2035. Closure of the SSTs would initialize long-term monitoring and maintenance that could last for 30 years or more depending on the requirements established by Ecology in the RCRA permit.

DST closure would trail SST farm closure. The first DST farm would be available for initiation of closure activities in FY 2042 and closure activities would be completed for the final DST farm in FY 2048. Closure of the DSTs would also initiate the long-term monitoring and maintenance of the tank farms.

Closure of the MUSTs would depend on where the MUSTs are located and whether they are actively supporting waste transfers. MUSTs located within SST and DST farms would be closed on the same schedule as the farm they are located in. MUSTs outside tank farm boundaries would be closed following termination of their use for waste transfers. Currently inactive MUSTs would be closed following definition of closure criteria and completion of design, acquisition, construction, and testing necessary to begin closure in FY 2024.

7.0 COST AND FUNDING REQUIREMENTS

This section provides the life-cycle cost estimate for the SST Program based on the technical approach discussed in Section 4 and the schedules provided in Section 6. Detailed cost information is provided in Appendix B for SST Waste Retrieval (including technology evaluation under the Hanford Tanks Initiative) and in Appendix C for Closure and Corrective Measure (including the Tank Farm Vadose Zone Project). The cost estimate by FY is summarized in Table 7-1. All costs are based on 1999 dollars that have not been escalated. The total life-cycle cost estimate for the SST Program is $5.6 billion from FY 2000 through FY 2044. Major project activities conclude in FY 2049; however, costs for closure system monitoring and maintenance will continue for up to 30 years following the closure of the last tank farm.

Table 7-1. Single-Shell Tank Program Cost Estimate by Fiscal Year

Fiscal Year	SST Waste Retrieval[1] (in millions of $)	Corrective Measures[2] (in millions of $)	Closure[3] (in millions of $)
2000	16.9	8.0	0.0
2001	20.9	12.3	1.4
2002	31.6	12.2	0.7
2003	26.2	16.3	0.6
2004	23.3	8.9	2.1
2005	62.9	17.3	3.3
2006	105.1	11.2	3.3
2007	127.7	9.8	2.6
2008	132.8	0.0	1.2
2009	129.1	0.0	1.0
2010	138.6	0.0	0.8
2011	145.0	0.0	0.6
2012	185.4	0.0	0.3
2013	177.7	0.0	0.2
2014	176.8	0.0	0.2
2015	169.7	0.0	0.2
2016	165.3	0.0	1.8
2017	158.6	0.0	1.7
2018	197.0	0.0	1.7
2019	221.0	0.0	1.7
2020	184.6	0.0	1.8
2021	145.7	0.0	1.7
2022	201.6	0.0	1.6
2023	221.1	0.0	1.6
2024	249.0	0.0	1.6
2025	221.0	0.0	0.0
2026	167.9	0.0	0.0
2027	239.4	0.0	0.0
2028	295.2	0.0	4.7
2029	376.8	0.0	4.7
2030	312.4	0.0	4.7
2031	220.0	0.0	9.4
2032	93.0	0.0	9.4
2033	9.6	0.0	9.4
2034	0.0	0.0	12.8
2035	0.0	0.0	12.8
2036	0.0	0.0	12.8

Table 7-1. Single-Shell Tank Program Cost Estimate by Fiscal Year

Fiscal Year	SST Waste Retrieval[1] (in millions of $)	Corrective Measures[2] (in millions of $)	Closure[3] (in millions of $)
2037	0.0	0.0	10.6
2038	0.0	0.0	10.6
2039	0.0	0.0	10.6
2040	0.0	0.0	14.5
2041	0.0	0.0	16.3
2042	0.0	0.0	18.7
2043	0.0	0.0	22.3
2044	0.0	0.0	22.7
2045	0.0	0.0	22.5
2046	0.0	0.0	22.6
2047	0.0	0.0	9.3
2048	0.0	0.0	9.4
2049	0.0	0.0	7.0
2050[4]	0.0	0.0	7.0
Total	5,349	96	319
Total Life-Cycle Cost: $5.8 billion			

Notes:

1 Estimate based on assumptions provided in Section 4.2.3.1 unconstrained planning case for FY 2000 modified to reflect the life-cycle program as presented in this plan. Estimates for waste retrieval activities (e.g., tank-by-tank design, construction, and operations) and infrastructure costs are based on the unconstrained baseline update project for Phase I retrieval activities and retrieval to support DST backfill and the assumption that cost efficiencies will be attained that will reduce the cost of retrieval to $25 million per tank during Phase II retrieval operations. This assumption has not been evaluated and may result in under-estimation of the life-cycle cost by as much as $7 billion.

2 Estimate based on assumptions identified in Section 4.2.2 and the FY 2000 multi-year work plan (constrained case) modified to reflect the life-cycle program as presented in this plan.

3 Estimate based on assumptions provided in Section 4.2.4 and the FY 2000 multi-year work plan (constrained case) modified to reflect the life-cycle program as presented in this plan. Estimates for tank farm closure activities (e.g., design and construction) are based on estimates included in the FY 1999 multi-year work plan. Based on data packages developed to support DOE/RL-98-72 the current planning basis estimate may substantially underestimate closure costs.

4 From FY 2050 to 2080 the program would incur a cost of $7 million per year for post-closure care.

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8.0 ORGANIZATION

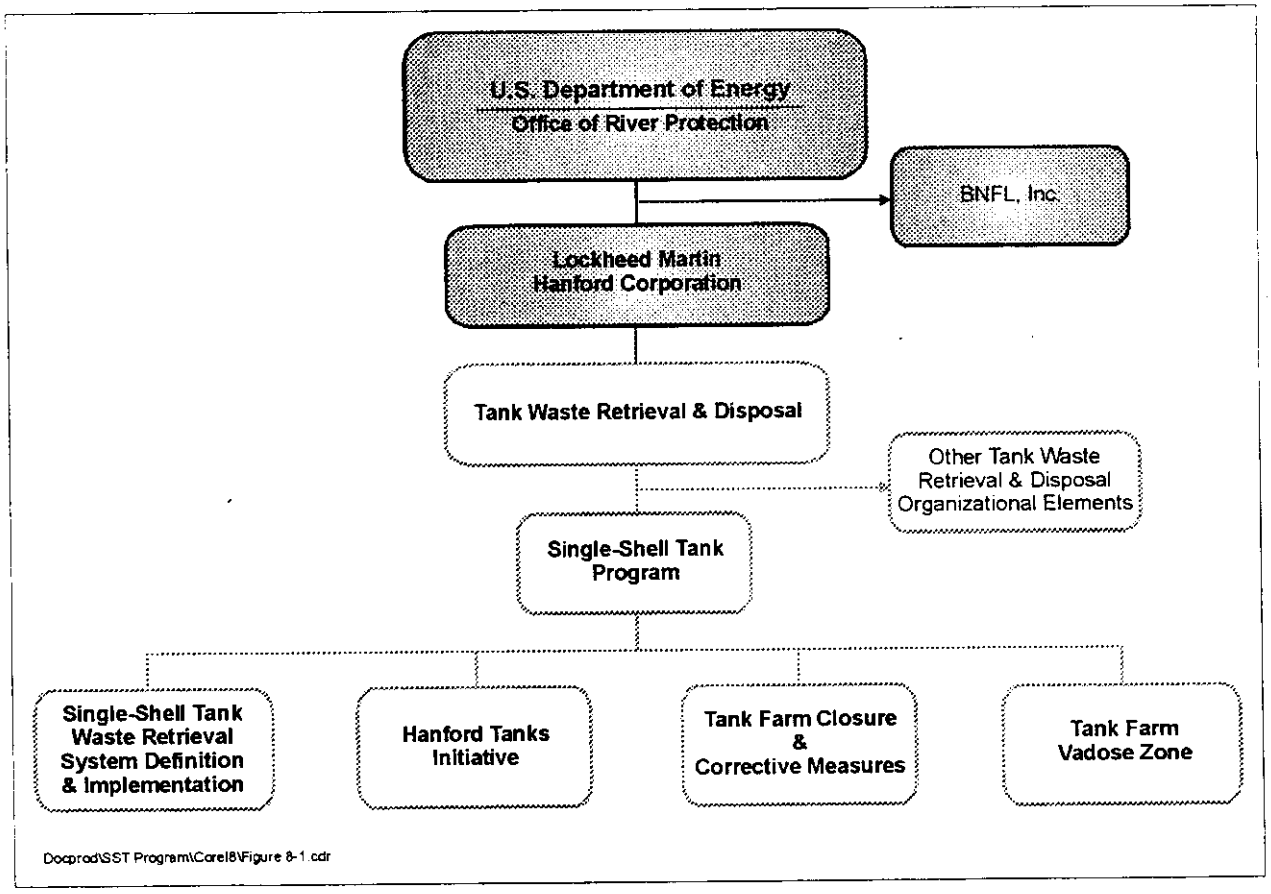
8.1 Organization Overview

The ORP is responsible for mitigating the threat posed by the waste contained in, and associated subsurface contamination from, the Hanford Site 200 Area tanks. Fluor Daniel Hanford, Inc. (FDH) is the DOE integrating contractor for the Hanford Site. The Lockheed Martin Hanford Corporation (LMHC) has a contract with ORP for design and implementation of an integrated solution to the tank waste problem. The SST Program is managed by LMHC. A DOE contract with BNFL, Inc. is in place for design, construction, and operation of the low-level and high-level waste processing and immobilization system that will vitrify the waste removed from the tank farms. Figure 8-1 depicts the SST Program organization within the ORP.

8.2 Roles and Responsibilities

The SST Program organization includes four groups within the Tank Waste Retrieval and Disposal (TWRD) organization.

Figure 8-1. Office of River Protection Organization



8.2.1 Tank Waste Retrieval and Disposal Organization

The TWRD organization is the key organization within LMHC responsible for developing plans and identifying the systems and facilities necessary to safely and efficiently:

- Retrieve waste from the tanks
- Transport the retrieved waste to waste immobilization facilities
- Safely store and dispose of the immobilized tank waste.

The TWRD organization is also responsible for (1) providing infrastructure support to the immobilization facilities; (2) correcting existing subsurface contamination from past tank leaks; and (3) developing plans for, and closure of, the tank farms upon completion of waste retrieval.

8.2.2 Single-Shell Tank Program Organization

The SST Program organization within the TWRD organization executes its role by focusing efforts on the SSTs and executing the program mission and scope as described in Section 4. The SST Program mission and scope is executed through four organizational subgroups:

- SST Waste Retrieval System Definition and Implementation group
- Hanford Tanks Initiative group
- Tank Farm Closure and Corrective Measures group
- Tank Farm Vadose Zone group.

8.2.2.1 Single-Shell Tank Waste Retrieval System Definition and Implementation Group

The SST Waste Retrieval System Definition and Implementation group develops the systems necessary to safely and effectively retrieve waste from the SSTs and MUSTs and to transfer that waste to DSTs prior to immobilization processing. Specifically, this group:

- Prepares plans that define scope, cost, and schedule for SST waste retrieval projects to complete the SST Program mission
- Defines the SST waste retrieval functions and requirements that are needed to design, acquire, and operate the systems that will retrieve the waste from SSTs in a safe and effective manner to support retrieval of waste to the extent needed to close tanks and tank farms and immobilization requirements
- Oversees the detailed design of the components and component integration of the SST waste retrieval system and acquisition, testing, and turnover of the system for waste retrieval operations
- Supports SST waste retrieval operations
- Monitors and continuously improves the retrieval systems through performance measurement activities.

8.2.2.2 Hanford Tanks Initiative Group

The Hanford Tanks Initiative group responds to technology needs of the other SST Program groups. Specifically, this group:

- Defines the functions and requirements that are needed to respond to technology needs expressed by the Tank Waste Retrieval Program organization elements
- Develops plans and provides the technology information needed by those groups
- Specifies test requirements and implements a testing program
- Identifies and demonstrates technologies that will meet those needs
- Provides a validated set of solutions for project selection and implementation.

8.2.2.3 Tank Farm Closure and Corrective Measures Group

The Tank Farm Closure and Corrective Measures group plans closure of all the tank farms, acquires information necessary to support closure decisions, and implements corrective measures to effectively mitigate the risks posed by tank farms subsurface contamination caused by past SST leaks. Specifically, this group:

- Prepares program plans that define the scope, cost, and schedule of the tank farm closure and corrective measures work
- Develops technical plans to close the tank farms that are to include the SSTs, MUSTs, DSTs, ancillary equipment, and soils within the tank farm operable unit boundary
- Develops the tank farm closure, subsurface corrective measure, and post-closure monitoring requirements
- Implements closure of the tank farms and the measures to mitigate risks posed by the subsurface contamination
- Conducts closure and corrective action measures to verify requirements are safely and effectively met.

8.2.2.4 Tank Farm Vadose Zone Group

The Tank Farm Vadose Zone group determines the extent and characteristics of tank farm subsurface contamination and how the contaminants migrate through the subsurface and to groundwater. Specifically, this group:

- Prepares program plans that define the scope, cost, and schedule of the tank farm vadose zone analyses
- Develops technical plans to collect and provide the subsurface information needed to support the SST Program mission
- Collects data on the nature and extent of subsurface contamination and characterizes the potential migration through the subsurface to the groundwater.

8.3 Organizational Interactions

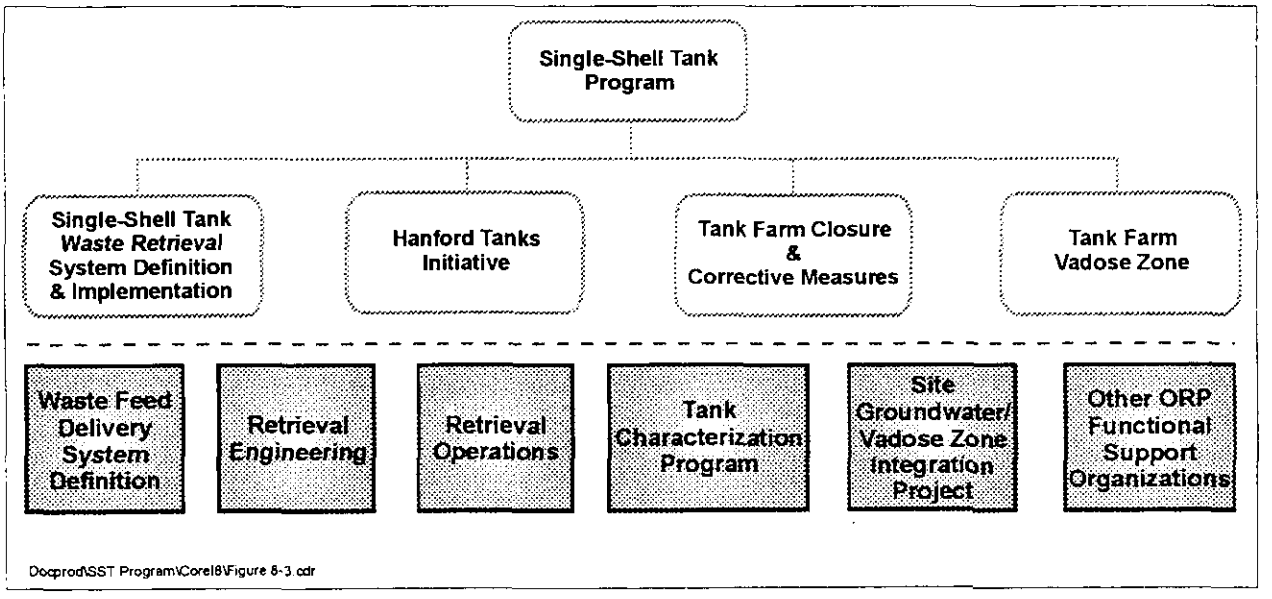
The key interfaces that exist between the elements within the SST Program and with external organizations are shown in Figure 8-2. Success of these interfacing organizations depends on the timely interchange of accurate information to ensure that both programmatic and technical objectives are accomplished. The diagram in Figure 8-3 shows organizational integration roles. A brief description of the key external organizations that interface with the SST Program are provided in the following subsections.

8.3.1 Waste Feed Delivery System Definition Organization

The Waste Feed Delivery System Definition organization develops the technical strategies and requirements for safe, compliant, and timely delivery of the required quantities and qualities of tank

waste feed to BNFL, Inc. In its contract BNFL, Inc. is required to process and immobilize a specific volume of waste with specific characteristics on a specific schedule. The waste feed requirements are critical for planning feed delivery including DST space availability and SST, MUST, and DST retrieval sequences. These requirements are used by the SST Waste Retrieval System Definition and Implementation group to develop the SST waste retrieval system requirements that will have the required retrieval sustained production rates for the specified SST waste retrieval sequences.

Figure 8-2. Key External Interface Organizations



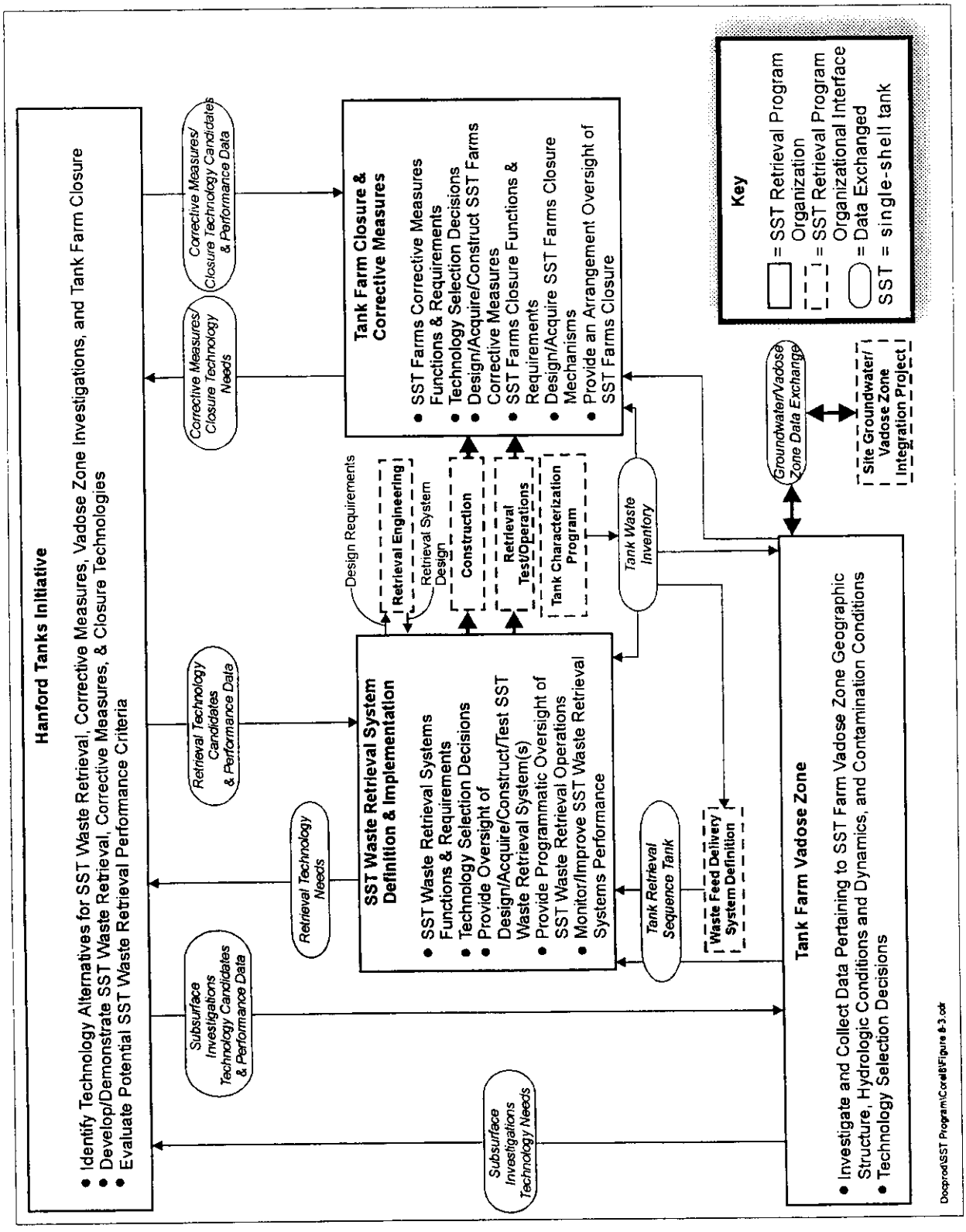
8.3.2 Retrieval Engineering Organization

The Retrieval Engineering organization is matrixed to the TWRD organization from the LMHC Technical Operations and Engineering organization. Retrieval Engineering staff perform the analyses and detailed engineering to design the SST waste retrieval system in accordance with the functional requirements developed by the SST Waste Retrieval System Definition and Implementation group.

8.3.3 Retrieval Operations Organization

The Retrieval Operations organization manages, directs, and conducts retrieval and transfer of waste from the SSTs using the SST waste retrieval systems provided by the SST Waste Retrieval System Definition and Implementation group.

Figure 8-3. Key Organizational Interfaces



8.3.4 Tank Characterization Program Organization

The Tank Characterization Program organization collects information about the waste contained in the SSTs. This information is used by the TWRD organization for SST waste retrieval system design, subsurface contamination estimates, and tank closure methods.

8.3.5 Site Groundwater/Vadose Zone Integration Project

The Site Groundwater/Vadose Zone Integration Project collects data concerning sitewide subsurface and groundwater contaminant conditions and geological and hydrological data that affects migration of contaminants to and within the groundwater. Information collected by the Tank Farm Vadose Zone group is shared and integrated with the site information to establish cumulative potential human health and ecosystem exposure levels for subsurface contamination and drive the strategies and designs for surface and subsurface corrective actions, waste retrieval, and tank farms closure.

8.4 Other Office of River Protection Functional Support Interfaces

The SST Program obtains support from other ORP functional organizations to ensure that the SST program addresses all aspects of the work safely and in accordance with all applicable laws, regulations, and established ORP procedures.

8.4.1 Systems Engineering and Integration Interface

The SST Program uses the services provided by the RPP Systems Engineering and Integration organization to apply systems engineering principles to the development of the SST program retrieval, vadose zone/corrective actions, and closure technical work. The program responds to requirements allocated to the SST Program technical systems and drives those requirements to the SST systems component level. The program provides design configuration and performance data to the RPP Systems Engineering and Integration organization to maintain the RPP technical baseline and facilities documentation and ensure requirements traceability to the lowest levels. The program participates and provides information for system level trade studies conducted by the systems engineering organization.

8.4.2 Nuclear Safety and Licensing Interface

The SST Program elements prepare and operate within Authorization Basis documents established by the RPP Nuclear Safety and Licensing organization. The program coordinates the resolution of waste tank safety issues and assists the RPP Nuclear Safety and Licensing organization in their interactions with FDH, DOE, and external agencies.

8.4.3 Environmental

The SST Program works with the ORP Environmental organization to obtain environmental permits and maintain a compliant program. The organization responds to the established environmental requirements and provides environmental monitoring and record-keeping information.

8.4.4 Quality Assurance

The SST Program implements the quality assurance requirements established by the ORP Quality Assurance organization. Using ORP quality assurance services, the program

qualifies suppliers, ensures procurement documentation reflects the appropriate quality assurance requirements, cooperates with quality assurance audits and surveillances, and responds to the respective findings with timely corrective actions to ensure that the program is quality assurance compliant.

8.4.5 Safety Services

The SST Program implements worker safety requirements established by the Safety Services organization. The organization ensures appropriate safety reviews of designs and work plans is performed; industrial hygiene and housekeeping requirements are met; monitoring of chemical, physical, biological, and ergonomic monitoring and evaluation; and fire hazards are minimized. The organization implements established requirements for employee safety complaints and concerns and resolution.

8.4.6 Emergency Preparedness

The SST Program responds to the emergency preparedness requirements and procedures established by the ORP Emergency Preparedness organization and participates in drills when required.

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9.0 MANAGEMENT APPROACH

The RPP management approach and management systems are used to ensure that planning and implementation are conducted in accordance with sound business, engineering, integrated safety, decision, risk, configuration, and interface management practices. The requirements of higher-tier directives and guidance are used to establish policies and procedures for day-to-day operations and management.

The TWRS Program Plan (HNF-1883) provides a description of the management approach used to establish the integration baseline that forms the basis for the waste retrieval and disposal mission. The plan also describes the key documents and management systems used to define and manage the total program. Key documents used to define the program include those listed below.

- **RPP Mission Analysis Report** (HNF-SD-WM-MAR-008)—provides the requirements assigned to the RPP and defines project initial and end states, major interfaces, and the activities the project must implement to be successful in achieving the defined mission.
- **TWRS Program Plan** (HNF-1883)—provides the main driver for management plans and procedures supporting implementation of the retrieval and disposal mission; it presents the planning requirements, schedules, and management strategies and policies for accomplishing the mission.
- **Retrieval and Disposal Mission Plans**—provide the plans for implementation of the RPP components.
- **Project Management Plans**—provide plans that flow down the upper-level plans and guiding principles and support management of projects implemented under each of the program missions of the retrieval and disposal mission.

For the SST Program, the RPP Mission Analysis Report (HNF-SD-WM-MAR-008) and the SST Retrieval Project Mission Analysis Report (HNF-2944) provide the requirements assigned to the SST Program, define the initial and end state for the program, identify the major interfaces, and assess the activities that must be implemented to successfully achieve the SST Program mission. These documents will be updated as the program matures and/or new information becomes available. The RPP Program Plan (HNF-1883) provides the main driver for the management plans and procedures supporting implementation of the retrieval and disposal mission and presents the planning requirements, schedules, management strategies, and policies for accomplishing the mission. These three documents provide the top-level requirements, directives, and guidance to support this SST Program Plan in implementing SST Program components.

The management processes include business operations necessary to establish and maintain the following:

- Program baseline
- Engineering processes that ensure the baseline supports the mission needs and requirements
- Integrated safety management
- Decision management
- Risk management
- Configuration management
- Interface management
- Staffing and personnel training and qualifications
- Public involvement.

These processes and management systems are described in detail in the RPP Program Plan (HNF-1883), implemented under the LMHC Administrative Procedure (HNF-IP-0842), and summarized in the following sections.

9.1 Business Operations

Business operations include activities necessary to establish and maintain the RPP program baseline. The SST Program supports the RPP business operations activities through planning for, and providing input to, the program baseline, scope, schedule, cost estimating, acquisition management, and performance monitoring.

9.1.1 Program Baseline Development, Scope, Schedule, and Cost

The SST Program supports business operations on an annual basis to refine execution-year and out-year planning. Planning includes refinement of scope, schedule, and budgets for work tasks and supporting task plans.

9.1.2 Acquisition Management

Acquisition management includes activities necessary to support the RPP authorization of work process, subcontracting, and industrial relations. For the SST Program the authorization of work process includes authorization for work activities and funding based on a multi-year work plan and authorization from FDH to LMHC through a project authorization document. Changes to the authorized schedule and funding for the project are controlled through a formal change control process.

9.1.3 Performance Assurance

Performance assurance includes activities necessary to support the following:

- Measurement and reporting
- Startup and operational readiness
- Testing and evaluation
- Continuous improvement.

The SST Program supports this process by monitoring and controlling performance based on established performance measures and reporting of variances to planned performance. Start-up and operational readiness is based on the criteria established in DOE O 425.1. The SST Program will implement a test and evaluation program for major projects to ensure that equipment meets all defined requirements. The SST Program complies with the Quality Assurance Program, which identifies implementing procedures for management assessment and other evaluation processes needed to implement improvement in key processes.

9.1.4 Management Systems

Management systems include information management tools (e.g., HANDI [Hanford Data Integration] 2000) used to acquire and analyze management information and decision models and analysis tools that assist in the decision-making process. The SST Program supports management of these systems by providing accurate and timely information needed to manage the RPP. The SST Program will also use and/or develop (when needed) project-specific information management and decision models to assist in the evaluation of technologies and selection of technologies for evaluation and development.

9.2 Engineering

The RPP uses a systems approach to all engineering processes. This approach ensures that the technical baseline supports the mission needs and requirements. The processes are designed to accomplish the following:

- Determine requirements
- Assess the system
- Verify the existing baseline
- Support the design, construction, testing, and operations process.

The SST Program will use systems engineering as a tool for understanding the complex system throughout its life cycle based on the Systems Engineering Management Policy (HNF-IP-0842, Vol. X, Section 4.2) and documented in the Systems Engineering Management Plan (HNF-SD-WM-SEMP-002). Application of the systems engineering approach will ensure a complete integrated and traceable technical baseline that meets the mission need, performs the necessary functions, and satisfies the technical requirements. The RPP Test and Evaluation Management Plan (HNF-2029) guides the SST test and demonstration programs to ensure that the SST system and associated components are verified. Additionally, the program will use engineering process as defined in the Engineering Plan (HNF-1947).

9.3 Integrated Safety Management System

The objective of the Integrated Safety Management System is to facilitate safe work. This system integrates requirements into the planning and execution of retrieval activities that reflect DOE's commitment to a standards-based safety program.

Environmental Safety, Health, and Quality Assurance; Radiological Control; and TWRS Engineering and Nuclear Safety organizations provide health and safety services to the RPP as defined in the TWRS Program Plan (HNF-1883). These organizations use the Integrated Safety Management System to guide the integration of safety and health functions into work planning, execution, and follow-up. The same organizational framework will be used in developing and implementing elements of the SST Program to promote safe work.

9.3.1 Environmental

The Environmental Program facilitates RPP compliance by definition and oversight of environmental regulatory requirements. The System Environmental Program Plan (HNF-1773) provides additional detail on the Environmental Program. The primary environmental issues that will require strategic input and support from the Environmental Program include the following:

- Permitting
- Airborne emissions from the tanks during retrieval
- Potential retrieval leakage to the vadose zone during retrieval
- Environmental constraints associated with developing a technical basis for the extent of waste retrieval necessary to be protective of human health and the environment.

9.3.2 Safety and Health

The RPP Safety and Health Program facilitates a multi-disciplined approach encompassing industrial safety, industrial hygiene, and fire protection. In support of the SST mission, Safety and Health is responsible for integrating development and

implementation of specific safety- and health-related programs, technical support to work planning and performance, and compliance oversight and assessment. Responsibilities are implemented through sitewide occupational health and safety procedures (WHC-SD-WM-HSP-002 and Section 1.1 of HNF-IP-0182); and other RPP-specific administrative and operational procedures. SST Program activities are covered by these procedures.

9.3.3 Quality Assurance

The RPP contractor implements its quality assurance program through Section 1.1 of the TWRS Quality Assurance Program Plan (HNF-IP-0182) and the Quality Assurance organization. An implementation matrix in the plan summarizes flow-down of requirements to procedures. The procedures control the quality assurance process for the entire RPP. The TWRS Quality Assurance Program Plan is reviewed and revised annually to accommodate changes in requirements, activities, organization, or facilities. Quality assurance requirements of the SST Program fall under the TWRS Quality Assurance Program Plan and subordinate procedures.

The PHMC Quality Assurance Program is described in the Quality Assurance Program Description (HNF-MP-0599). The Quality Assurance Program Description identifies the quality assurance requirements that the PHMC team is obliged to implement and is based on 10 CFR 830.120 for nonreactor nuclear facilities and DOE Order 5700.6C for the balance of the plant.

9.3.4 Nuclear Safety

Nuclear safety encompasses systems and activities that minimize the potential for a criticality and release of fission products or other radioactive materials that could adversely affect the environment, the workers, and the public. The Environmental Safety, Health, and Quality Assurance organization is responsible for review and oversight of engineering and nuclear safety analysis developed by the TWRS Engineering and Nuclear Safety organization.

9.3.5 Emergency Preparedness

The Emergency Preparedness Program is an integral element of the Integrated Safety Management System under the direction of the Environmental Safety, Health, and Quality Assurance Director. The program is conducted in accordance with applicable regulations, requirements, and procedures. The permanent Emergency Preparedness coordinators conduct the day-to-day activities (e.g., planning, procedure development and review, training, and drills for the RPP facilities) and implement facility-specific requirements. The Emergency Preparedness organization works in conjunction with the Sitewide Emergency Preparedness Program. Emergency services (e.g., fire fighting, ambulance, security) are provided by other Hanford Site contractors.

9.3.6 Radiological Control

The Radiological Control organization integrates safety and health functions into all phases of the RPP. The Hanford Site Radiological Control Manual (HSRCM-1) outlines the compliance program for 10 CFR 835. The Radiological Control organization implements this program through support and oversight of RPP work, including the SST Program activities. This effort involves the generation of radiation work permits for relevant work and the assignment of radiological control technicians as appropriate.

In support of the SST Program mission, the Radiological Control organization provides management, support, and oversight in radiological design requirements, radiological surveys and work practices, assessments and field observations, radiological problem reporting system, and ALARA (as low as reasonably achievable) practices.

9.3.7 Nuclear Safety and Licensing

The nuclear safety activities are executed by the Nuclear Safety and Licensing organization. This functional support group ensures consistency across all aspects of the RPP in terms of hazard identification; control development; structure, system, and component specification; authorization basis document preparation; DOE order compliance; and approaches to dealing with technical uncertainty. Policies, standards, and requirements relevant to Nuclear Safety and Licensing are defined in the following:

- RPP S/RIDs
- PHMC
- FDH procedures
- RPP procedures
- RPP mission-specific engineering baseline documentation
- Project-specific engineering baseline documentation.

9.4 Decision, Risk, Configuration, and Interface Management

Decision, risk, configuration, and interface management processes ensure that the SST Program accomplishes the following:

- Makes timely, traceable decisions
- Plans for management of technical, schedule, and cost risks
- Provides an integrated approach to management of technical, cost, schedule, and administrative information necessary to maintain configuration control of the project and integration with other projects.

The SST Program will use decision, risk, configuration, and interface management systems in accordance with the requirements established in the TWRS Program Plan (HNF-1883).

9.5 Staffing and Personnel Training and Qualifications

Staffing, training, and qualification strategies ensure that qualified people are available to support the SST Program mission. The SST Program will support the LMHC staffing and training programs as defined in the TWRS Program Plan (HNF-1883).

9.6 Stakeholder Affairs

The goal of the SST Program is to provide timely, accurate, and responsive communication regarding issues of concern to stakeholders, Tribal Nations, and other interested parties. To ensure meeting this goal, public participation will be managed in conformance with the Integrated Hanford Communications Plan (HNF-MP-012) submitted by FDH to DOE. The plan identifies key Hanford Site stakeholders and provides a framework for integrated communications and public involvement for the Hanford Site. On issues associated with potential impacts to groundwater quality from SST waste retrieval activities, corrective measures, and tank closure the program will also coordinate communications with the sitewide LMHC Vadose Zone/Groundwater Integration Project.

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10.0 REFERENCES

10 CFR 830, "Quality Assurance Requirements," *Code of Federal Regulations*, as amended.

10 CFR 835, "Occupational Radiation Protection," *Code of Federal Regulations*, as amended.

62 FR 8693, 1997, "Record of Decision for the Tank Waste Remediation System, Hanford Site, Richland, Washington," *Federal Register*, Volume 62, pp. 8693-8704.

BBI, 1999, *Best Basis Inventory*, access page located at http://www.hanford.gov/twrs/char.pub/ as of August 6, 1999.

DNFSB 94-2, 1994, *Recommendation 94-2 to the Secretary of Energy*, Defense Nuclear Facilities Safety Board, Washington, D.C.

DOE/EIS-0189, 1996, *Tank Waste Remediation System, Hanford Site, Richland Washington, Final Environmental Impact Statement*, U.S. Department of Energy, Richland, Washington.

DOE O 425.1, 1997, *Startup and Restart of Nuclear Facilities*, U.S. Department of Energy, Washington, D.C.

DOE O 430.1A, *Life Cycle Asset Management*, U.S. Department of Energy, Washington, D.C.

DOE Order 5700.6C, *Quality Assurance*, U.S. Department of Energy, Washington, D.C.

DOE/RL-96-16, 1998, *Screening Assessment and Requirements for a Comprehensive Assessment – Columbia River Comprehensive Impact Statement*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-98-72, 1999, *Retrieval Performance Evaluation Methodology for the AX Tank Farm*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-99-36, *Phase 1 RCRA Facility Investigation/Corrective Measures Study Work Plan for Single-Shell Tank Waste Management Areas*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

ERMI, 1999, *ERMI n.d. Environmental Requirements Management Interface Database*, database maintained by Lockheed Martin Hanford Corporation, Richland, Washington.

GPG-FM-010, *Project Execution and Engineering Management Planning, Life Cycle Asset Management, Good Practice Guide*, U.S. Department of Energy, Washington, D.C.

Hazardous Waste Management Act, Chapter 70.105, Revised Code of Washington, Olympia, Washington.

HNF-1773, 1998, *Tank Waste Remediation System Environmental Program Plan*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-1883, 1998, *Tank Waste Remediation System Program Plan*, Rev. 1, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-1900, 1998, *Tank Waste Remediation System Configuration Management Plan*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-1901, 1998, *Tank Waste Remediation System Retrieval and Disposal Mission Technical Baseline Summary Description*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-1945, 1998, *Tank Waste Remediation System Retrieval and Disposal Mission Key Enabling Assumptions*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-1947, 1998, *Tank Waste Remediation System Engineering Plan*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-2029, 1999, *River Protection Project Testing and Evaluation Management Plan*, Rev. 1, Lockheed Martin Hanford Corporation, Richland, Washington.

HNF-2603, 1998, *A Summary and Evaluation of Hanford Site Tank Farm Subsurface Contamination*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-2944, 1998, *Single-Shell Tank Retrieval Program Mission Analysis Report*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-3912, 1999, *System Specification for the Single-Shell Tank System*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-4208, 1999, *Tank Waste Remediation System Architecture Tree*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-EP-0182-133, 1999, *Waste Tank Summary Report for Month Ending April 30, 1999*, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-EP-0182-134, 1999, *Waste Tank Summary Report for Month Ending May 31, 1999*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-EP-0182-135, 1999, *Waste Tank Summary Report for Month Ending June 30, 1999*, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-IP-0842, 1999, *TWRS Administration*, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-MP-012, 1997, *Integrated Hanford Communications Plan*, Rev. 0, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-MP-0599, 1997, *Project Hanford Quality Assurance Program Description*, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SD-WM-MAR-008, 1999, *River Protection Project Mission Analysis Report*, Rev. 4, Draft, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SD-WM-SEMP-002, 1999, *River Protection Project System Engineering Management Plan*, Rev. 2, Draft, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SD-WM-SP-012, *Tank Waste Remediation System Operation and Utilization Plan to Support Waste Feed Delivery*, Rev. 1, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SD-WM-TI-740, 1997, *Standard Inventories of Chemicals and Radionuclides in Hanford Site Tank Wastes*, Rev. 0A, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SP-1223-ICD-19, *BNFL-5193-ID-19, Interface Control Document between DOE and the PMHC Low-Activity Waste Feed*, Rev. 2, Fluor Daniel Hanford, Inc., Richland, Washington.

HNF-SP-1225-ICD-21, *BNFL-5193-ID-20, Interface Control Document Between DOE and the PHMC Phase I Waste Feed Tank Support Systems Low-Activity Waste Product*, Fluor Daniel Hanford, Inc., Richland, Washington.

HSRCM-1, 1994, *Hanford Site Radiological Control Manual*, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

National Environmental Policy Act of 1969, Public Law 91-190, 42 USC 4321 et seq., as amended.

PNNL-11800, 1998, *Composite Analysis for Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-11809, 1998, *Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Area T and TX-TY at the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-11810, 1998, *Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Areas S-SX at the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-11826, 1998, *Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Areas B-BX-BY at the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

Public Law 101-510, 1990, *Safety Measures for Waste Tanks at Hanford Nuclear Reservation*, Section 3137.

Resource Conservation and Recovery Act of 1976, Public Law 94-580, 90 Stat. 2795, Title 42.

TWINS, 1999, *Tank Waste Information Network System*, access page at http://twins.pnl.gov:8001/ as of August 6, 1999.

TWR-4454, 1999, *Alternatives Generation and Analysis C-104, Single-Shell Tanks Waste Feed Delivery*, Rev. 1, Numatec Hanford Company, Richland, Washington.

WAC 173-303-645, "Releases from Regulated Units," *Washington Administrative Code*, as amended.

WHC-SD-WM-HSP-002, 1995, *Tank Farm Health and Safety Plan*, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

APPENDIX A

INITIAL STATE AND CONDITIONS DATA

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APPENDIX A
INITIAL STATE AND CONDITIONS DATA

A1.0 INTRODUCTION

This appendix provides data relevant to the initial state of the Hanford Site single-shell tanks. Tank-by-tank information regarding the following is provided in Table A-1 and includes:

- Watch List status
- Past tank leak volume estimates
- Leak status (i.e., sound or declared leaker)
- Interim stabilization status
- Volume of various waste forms (i.e., supernate, sludge, and salt cake)
- Total waste volume estimate
- Drainable liquid volume estimate
- Waste type
- Volume in curies of constituents of concern.

Contaminants of concern (CoCs) are provided because those contaminants residing in the tank waste could cause both short-term and long-term threats to human health and the ecosystem if they were released. The threats would primarily arise from releases that would be ingested through air and water. Releases of the CoCs could result from routine remediation activities, accidents, inadvertent intruder effects, and tank leaks.

The Columbia River Comprehensive Impact Assessment[2] identified CoCs through a rigorous screening process. The screening process identified CoCs based on radiation, carcinogenic, and human and aquatic biota toxicity characteristics. Two other studies used a similar screening methodology, and concentrated on identifying CoCs specific to the single-shell tanks and assessing the threats of those contaminants.[3,4] The CoCs that pose long-term threats are of particular interest to the Single-Shell Tank Program strategy because they are a major factor in determining of the subsurface investigation methods, associated corrective measures, residual tank waste criteria, and tank closure plans.

The following are the single-shell tank CoCs that pose threats to long-term health:

- Nitrite (NO_2^-)
- Nitrate (NO_3^-)
- Ethylenediaminetetraacetic acid (EDTA)
- Carbon-14 (C-14)
- Selenium-79 (Se-79)
- Technetium-99 (Tc-99)
- Iodine-129 (I-129)
- Uranium-238 (U-238).

[2] DOE/RL-96-16, 1998, *Screening Assessment and Requirements for a Comprehensive Assessment—Columbia River Comprehensive Impact Assessment*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[3] DOE/RL-98-72, 1999, *Retrieval Performance Evaluation Methodology for the AX Tank Farm*, Jacobs Engineering Group Inc. for the U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[4] DOE/EIS-0189, 1996, *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Table A-1. Single-Shell Tank Initial State Data

TANK	Watch List	Leakage (Gal)	L=Leaker S=Sound	Stabil.	Supernate (Kgal)	Sludge (Kgal)	Saltcake (Kgal)	Total Waste (Kgal)	Drainable Liquid (Kgal)	Waste Type	Tc-99 (Ci) Beta	C-14 (Ci) Beta	I-129 (Ci) Beta, Gamma	Se-79 (Ci) Beta	U-238 (Ci) Alpha	NO2- (Kg)	NO3- (Kg)	Cs-137 (Ci) Beta	Sr-90 (Ci) Beta
A-101	HYD		S	N	508	3	442	953	897	DSSF	869.0	115.0	1.7	11.9	0.5	461,000	821,000	1,250,000.0	152,000.0
A-102			S		4	15	22	41	0	DSSF	26.4	0.3	0.0	4.4	2.0	21,900	34,000	31,400.0	135,000.0
A-103		5,500	L		5	366	0	371	0	DSSF	236.0	4.9	0.0	5.2	0.9	140,000	220,000	293,000.0	148,000.0
A-104		2,500	L		0	28	0	28	0	NCPLX	8.3	1.2	0.0	5.3	0.0	3,070	0	77,700.0	2,930,000.0
A-105		277,000	L		0	19	0	19	0	NCPLX	12.1	1.7	0.0	8.0	0.0	1,940	0	173,000.0	4,710,000.0
A-106			S		0	125	0	125	0	CP	97.1	13.2	0.2	42.5	0.2	61,000	57,300	91,900.0	713,000.0
A-Farm	**1**	**285,000**			**517**	**556**	**464**	**1,537**	**897**		**1248.9**	**136.3**	**1.9**	**77.3**	**3.4**	**625,970**	**1,075,000**	**1,652,100.0**	**3,385,000.00**
AX-101	HYD		S	N	386	3	359	748	534	DSSF	267.0	267.0	0.0	13.5	0.4	434,000	587,000	1,020,000.0	137,000.0
AX-102		3,000	L		3	7	29	39	3	CC	27.8	27.8	0.1	12.0	0.1	5,080	34,600	46,200.0	313,000.0
AX-103	HYD		S		0	2	110	112	3	CC	184.0	184.0	0.0	0.1	0.1	59,100	71,300	131,000.0	587,000.0
AX-104			L		0	7	0	7	0	NCPLX	95.1	95.1	0.0	0.1	0.1	115	2,340	63,600.0	2,650,000.0
AX-Farm	**2**	**3,000**			**389**	**19**	**498**	**906**	**540**		**573.9**	**573.9**	**0.1**	**25.6**	**0.7**	**498,295**	**795,240**	**1,260,800.0**	**3,687,000.0**
B-101			L		0	113	0	113	0	NCPLX	3.5	0.5	0.0	4.9	1.2	34,000	115,000	15,900.0	2,230.0
B-102			S		4	18	10	32	0	NCPLX	0.8	0.1	0.0	0.0	0.4	1,930	23,900	4,410.0	616.0
B-103			L		0	59	0	59	0	NCPLX	0.8	0.1	0.0	0.0	0.6	2,750	34,100	9,300.0	1,290.0
B-104			S		1	301	69	371	40	NCPLX	1.5	0.2	0.0	0.0	1.2	4,730	196,000	19,400.0	10,200.0
B-105			L		0	40	266	306	0	NCPLX	1.8	0.3	0.0	0.1	3.3	36,300	131,000	24,500.0	6,730.0
B-106			S		1	116	0	117	0	NCPLX	1.7	0.2	0.0	0.0	2.4	4,540	114,000	12,100.0	39,400.0
B-107		8,000	L		1	164	0	165	7	NCPLX	17.5	0.6	7.9	0.1	0.7	3,410	151,000	21,700.0	36,100.0
B-108			S		0	94	0	94	0	NCPLX	0.9	0.1	0.0	0.0	1.4	6,340	40,100	8,780.0	10,600.0
B-109			S		0	127	0	127	0	NCPLX	33.8	3.9	0.1	0.3	4.8	7,140	82,700	31,700.0	8,530.0
B-110		10,000	L		1	245	0	246	17	NCPLX	20.7	0.3	0.0	1.3	0.1	12,900	234,000	18,600.0	135,000.0
B-111			L		1	236	0	237	16	NCPLX	121.0	1.7	0.0	11.0	0.1	47,800	87,200	168,000.0	264,000.0
B-112		2,000	L		3	30	0	33	0	NCPLX	10.4	0.3	0.0	0.2	0.0	4,400	21,400	12,700.0	26,200.0
B-201		1,200	L		1	28	0	29	0	NCPLX	0.3	0.0	0.0	0.0	0.0	121	6,780	110.0	287.0
B-202			S		0	27	0	27	0	NCPLX	0.0	0.0	0.0	0.0	0.0	67	7,740	3.1	449.0
B-203		300	L		1	50	0	51	0	NCPLX	0.0	0.0	0.0	0.0	0.0	170	14,600	36.9	32.5
B-204		400	L		1	49	0	50	0	NCPLX	0.0	0.0	0.0	0.0	0.0	160	11,800	36.2	31.9
B-Farm	**0**	**21,900**			**15**	**1,697**	**345**	**2,057**	**80**		**214.6**	**8.4**	**8.1**	**18.0**	**16.2**	**166,758**	**1,271,320**	**347,276.2**	**543,696.4**
BX-101			L		1	42	0	43	0	NCPLX	9.1	0.1	0.0	0.1	3.5	6,900	13,600	17,500.0	61,200.0
BX-102		70,000	L		0	96	0	96	0	NCPLX	8.0	0.2	0.0	0.0	0.3	215	5,960	8,100.0	20,400.0
BX-103			S		6	62	0	68	0	NCPLX	15.9	0.5	0.0	0.0	0.6	1,450	16,000	21,200.0	45,100.0
BX-104			S		3	96	0	99	27	NCPLX	24.7	0.3	0.0	0.7	8.1	17,400	34,600	52,300.0	138,000.0
BX-105			S	N	5	43	3	51	4	NCPLX	12.0	0.4	0.0	0.1	0.4	8,330	12,000	16,100.0	33,600.0
BX-106			S	N	0	38	0	38	0	NCPLX	27.7	4.5	0.1	0.4	0.3	5,710	7,830	10,700.0	26,800.0
BX-107			S		1	344	0	345	23	NCPLX	69.4	0.5	0.0	0.0	3.0	15,300	258,000	31,600.0	17,900.0
BX-108		2,500	L		0	26	0	26	0	NCPLX	5.0	0.0	0.0	0.0	0.6	2,290	24,800	2,050.0	14,300.0
BX-109			S		0	193	0	193	6	NCPLX	1.5	0.2	0.0	0.0	6.0	19,800	211,000	14,100.0	199,000.0
BX-110			L		3	195	9	207	13	NCPLX	30.6	5.5	0.1	0.5	2.8	24,100	348,000	67,100.0	20,100.0
BX-111			L		1	52	109	162	1	NCPLX	98.3	17.7	0.2	1.9	0.4	10,600	363,000	76,400.0	22,900.0
BX-112			S		1	164	0	165	2	NCPLX	1.7	0.2	0.0	0.0	0.3	21,000	61,400	42,000.0	4,910.0
BX-Farm	**0**	**72,500**			**21**	**1,351**	**121**	**1,493**	**78**		**301.8**	**30.3**	**0.4**	**3.8**	**26.3**	**133,105**	**1,356,190**	**359,150.0**	**604,210.0**
BY-101			S		0	109	278	387	0	NCPLX	251.0	45.4	0.5	3.8	2.6	64,300	655,000	267,000.0	220,000.0
BY-102			S		0	0	277	277	0	NCPLX	231.0	41.2	0.4	3.5	0.2	25,200	156,000	155,000.0	42,500.0
BY-103		5,000	L		0	5	409	414	32	NCPLX	280.0	50.3	0.5	4.2	0.4	62,200	851,000	226,000.0	79,600.0
BY-104			S		0	40	366	406	0	NCPLX	128.0	22.8	0.2	1.9	2.4	75,400	564,000	220,000.0	884,000.0
BY-105			L		0	159	345	504	186	NCPLX	243.0	43.7	0.5	3.7	7.1	95,900	851,000	522,000.0	620,000.0
BY-106			L		0	84	478	562	238	NCPLX	391.0	70.1	0.8	5.9	0.2	114,000	1,180,000	704,000.0	496,000.0
BY-107		15,100	L		0	80	206	266	0	NCPLX	108.0	19.3	0.2	1.6	2.9	80,500	416,000	241,000.0	33,600.0
BY-108		5,000	L		0	154	74	228	0	NCPLX	45.9	8.4	0.1	0.7	4.1	35,500	281,000	351,000.0	105,000.0
BY-109			S		0	57	233	290	20	NCPLX	191.0	34.3	0.4	2.9	0.7	45,200	116,000	149,000.0	105,000.0
BY-110			S		0	103	295	398	0	NCPLX	151.0	27.0	0.3	2.3	4.7	77,700	376,000	195,000.0	283,000.0
BY-111			S		0	21	438	459	0	NCPLX	310.0	55.9	0.6	4.7	8.8	38,800	418,000	226,000.0	61,500.0
BY-112			S		0	5	286	291	0	NCPLX	203.0	36.4	0.4	3.1	3.3	37,000	124,000	189,000.0	133,000.0
BY-Farm	**0**	**25,100**			**0**	**797**	**3,685**	**4,482**	**476**		**2533.9**	**454.8**	**4.9**	**38.3**	**37.3**	**751,700**	**5,948,000**	**3,445,000.0**	**3,133,200.0**
C-101		20,000	L		0	88	0	88	0	NCPLX	0.4	0.1	0.0	0.0	1.4	5,320	37,400	1,730.0	1,070.0
C-102	ORG		S		0	316	0	316	17	DC	1.2	0.2	0.0	0.0	5.0	22,000	69,400	62,500.0	182,000.0
C-103	ORG		S	N	83	119	0	202	86	NCPLX	213.0	0.4	0.0	5.3	1.1	17,800	2,990	78,000.0	1,980,000.0
C-104			S		0	295	0	295	5	CC	31.0	1.2	0.0	15.1	11.5	44,600	30,200	103,000.0	630,000.0
C-105			S		2	132	0	134	9	NCPLX	98.1	0.9	0.1	0.0	1.7	16,300	11,300	125,000.0	365,000.0
C-106	HH		S	N	32	197	0	229	52	NCPLX	221.0	0.2	0.0	16.5	0.5	21,700	1,920	267,000.0	4,770,000.0
C-107			S		0	237	0	237	15	DC	105.0	0.6	0.0	25.7	1.0	20,700	51,700	30,800.0	1,680,000.0
C-108			S		0	66	0	66	0	NCPLX	0.5	0.1	0.0	0.0	0.0	8,650	15,600	90,700.0	9,450.0
C-109			S		4	62	0	66	0	NCPLX	30.6	0.0	0.0	0.1	1.3	11,800	11,700	237,000.0	221,000.0
C-110		2,000	L		1	177	0	178	15	DC	34.1	0.3	0.0	1.3	0.7	9,170	109,000	18,600.0	4,690.0
C-111		5,500	L		0	57	0	57	0	NCPLX	0.2	0.0	0.0	0.0	1.4	5,330	10,900	12,000.0	1,140,000.0
C-112			S		0	104	0	104	26	NCPLX	79.7	2.7	0.0	0.2	12.2	36,200	48,300	246,000.0	1,250,000.0
C-201		550	L		0	2	0	2	0	NCPLX	0.0	0.0	0.0	0.0	0.0	80	431	176.0	17,000.0
C-202		450	L		0	1	0	1	0	EMPTY	0.0	0.0	0.0	0.0	0.0	203	610	91.8	14,600.0
C-203		400	L		0	5	0	5	0	NCPLX	0.0	0.0	0.0	0.0	0.0	59	1,940	318.0	9,320.0
C-204		350	L		0	3	0	3	0	NCPLX	0.0	0.0	0.0	0.0	0.0	25	817	134.0	376.0
C-Farm	**3**	**29,250**			**122**	**1,861**	**0**	**1,983**	**227**		**814.9**	**6.9**	**0.2**	**66.4**	**37.9**	**219,936**	**404,208**	**1,273,049.8**	**12,274,506.0**
S-101			S	N	12	211	204	427	138	NCPLX	229.0	31.8	0.4	5.2	4.0	132,000	428,000	291,000.0	525,000.0
S-102	HYD		S	N	0	105	444	549	224	DSSF	244.0	34.2	0.5	3.4	1.0	125,000	1,120,000	461,000.0	84,200.0
S-103			S	N	17	9	222	248	110	DSSF	260.0	36.5	0.5	3.6	0.6	73,700	322,000	195,000.0	143,000.0
S-104		24,000	L		1	293	0	294	23	NCPLX	44.2	1.6	0.1	4.4	4.1	47,300	349,000	110,000.0	549,000.0
S-105			S		0	2	454	456	13	NCPLX	303.0	42.4	0.6	4.6	0.9	161,000	459,000	451,000.0	270,000.0
S-106			S	N	53	0	426	479	243	NCPLX	418.0	58.4	0.8	8.1	0.3	86,100	1,050,000	281,000.0	41,800.0
S-107			S	N	14	293	69	376	90	NCPLX	93.0	13.1	0.2	1.7	5.6	75,300	141,000	214,000.0	404,000.0
S-108			S		0	4	446	450	0	NCPLX	448.0	62.9	0.9	6.6	1.0	176,000	499,000	498,000.0	301,000.0
S-109			S	N	0	13	494	507	167	NCPLX	454.0	63.8	0.9	6.5	0.0	11,400	1,450,000	106,000.0	275,000.0
S-110			S		0	131	259	390	23	NCPLX	280.0	39.3	0.5	3.9	2.7	119,000	369,000	278,000.0	367,000.0
S-111	HYD		S	N	23	139	378	540	221	NCPLX	511.0	71.5	1.0	7.3	0.2	88,600	526,000	355,000.0	674,000.0
S-112	HYD		S	N	0	5	517	523	140	NCPLX	476.0	66.8	0.9	7.0	1.1	185,000	525,000	582,000.0	340,000.0
S-Farm	**3**	**24,000**			**120**	**1,206**	**3,913**	**5,239**	**1,392**		**3760.2**	**522.3**	**7.3**	**60.4**	**21.5**	**1,282,400**	**7,237,000**	**3,820,000.0**	**3,974,000.0**
SX-101	HYD		S	N	0	128	314	442	163	DC	131.0	17.7	0.3	5.4	1.1	92,400	741,000	243,000.0	266,000.0
SX-102	HYD		S	N	0	117	426	543	216	DSSF	629.0	88.2	1.2	8.5	0.5	252,000	657,000	647,000.0	278,000.0
SX-103	HYD		S	N	0	115	536	651	271	NCPLX	648.0	90.6	1.3	11.3	0.5	292,000	833,000	826,000.0	886,000.0
SX-104	HYD	6,000	L	N	0	136	448	584	172	DSSF	548.0	76.7	1.1	9.1	3.2	197,000	593,000	522,000.0	528,000.0
SX-105	HYD		S	N	0	73	610	683	301	DSSF	775.0	109.0	1.5	12.4	0.5	301,000	652,000	763,000.0	285,000.0
SX-106	HYD		S	N	197	52	264	513	108	NCPLX	525.0	73.7	1.0	7.4	0.2	240,000	699,000	471,000.0	170,000.0
SX-107		5,000	L		0	104	0	104	0	NCPLX	14.2	1.9	0.0	3.7	1.8	20,900	84,300	53,300.0	198,000.0
SX-108		35,000	L		0	87	0	87	0	NCPLX	7.7	1.0	0.0	2.5	2.2	9,040	85,600	69,200.0	1,090,000.0
SX-109	HYD	10,000	L		0	0	244	244	25	NCPLX	69.7	8.0	0.1	7.2	5.6	45,100	412,000	258,000.0	1,100,000.0
SX-110		5,500	L		0	62	0	62	0	NCPLX	16.3	2.1	0.0	5.0	1.1	12,600	50,900	32,200.0	120,000.0
SX-111		2,000	L		0	125	0	125	0	NCPLX	24.7	3.2	0.0	6.6	2.1	25,000	101,000	63,700.0	237,000.0
SX-112		30,000	L		0	92	0	92	0	NCPLX	15.3	2.0	0.0	4.0	1.6	18,500	73,400	47,100.0	175,000.0
SX-113		15,000	L		0	26	0	26	0	NCPLX	0.1	0.0	0.0	0.0	0.0	407	1,640	1,040.0	3,870.0
SX-114			L		0	181	0	181	0	NCPLX	52.6	6.7	0.1	6.4	3.2	34,100	183,000	202,000.0	267,000.0
SX-115		50,000	L		0	12	0	12	0	NCPLX	2.4	0.3	0.0	0.2	0.2	864	13,600	16,200.0	382,000.0
SX-Farm	**7**	**158,500**			**197**	**1,310**	**2,842**	**4,349**	**1,256**		**3459.0**	**482.0**	**6.7**	**91.7**	**23.8**	**1,540,911**	**5,180,440**	**4,214,740.0**	**5,985,870.0**
T-101		7,500	L		1	101	0	102	0	NCPLX	8.2	1.2	0.0	0.1	6.2	15,600	122,000	93,000.0	118,000.0
T-102			S		13	19	0	32	13	NCPLX	2.3	5.9	0.0	0.0	1.9	2,160	9,870	7,300.0	30,700.0
T-103		1,000	L		4	23	0	27	0	NCPLX	2.1	0.3	0.0	0.0	1.4	1,250	3,210	28,400.0	27,100.0
T-104			S	N	0	328	0	328	25	NCPLX	1.3	0.1	0.0	0.1	0.6	8,810	125,000	417.0	5,510.0
T-105			S		0	98	0	98	17	NCPLX	153.0	0.4	0.0	0.0	1.0	18,200	12,700	13,300.0	115,000.0
T-106		115,000	L		2	19	0	21	0	NCPLX	0.1	0.0	0.0	0.0	0.3	1,280	3,560	1,980.0	3,050.0
T-107			L		0	173	0	173	12	NCPLX	0.4	0.1	0.0	0.0	7.5	11,700	74,800	12,200.0	107,000.0
T-108		1,000	L		0	44	0	44	0	NCPLX	0.3	0.0	0.0	0.0	0.5	1,820	66,700	998.0	1,580.0

Table A-1. Single-Shell Tank Initial State Data

TANK	Watch List	Leakage (Gal)	L=Leaker S=Sound	Stabil.	Supernate (Kgal)	Sludge (Kgal)	Saltcake (Kgal)	Total Waste (Kgal)	Drainable Liquid (Kgal)	Waste Type	Tc-99 (Ci) Beta	C-14 (Ci) Beta	I-129 (Ci) Beta, Gamma	Se-79 (Ci) Beta	U-238 (Ci) Alpha	NO2- (Kg)	NO3- (Kg)	Cs-137 (Ci) Beta	Sr-90 (Ci) Beta
T-109		1,000	L		0	58	0	58	0	NCPLX	0.7	0.1	0.0	0.0	0.1	188	7,950	1,130.0	2,450.0
T-110	HYD		S	N	0	353	0	353	34	NCPLX	14.0	0.0	0.0	0.0	1.7	25,600	51,900	281.0	9,180.0
T-111		1,000	L		0	446	0	446	29	NCPLX	17.0	0.0	0.0	0.0	2.3	1,710	89,000	334.0	10,900.0
T-112			S		7	60	0	67	7	NCPLX	2.6	0.0	0.0	0.0	0.3	9,210	5,860	48.8	1,580.0
T-201			S		1	26	0	27	0	NCPLX	0.0	0.0	0.0	0.0	0.0	44	6,730	7.0	21.7
T-202			S		0	21	0	21	0	NCPLX	0.0	0.0	0.0	0.0	0.0	52	6,470	3.0	0.3
T-203			S		0	35	0	35	0	NCPLX	0.0	0.1	0.0	0.0	0.0	48	10,500	3.2	0.5
T-204			S		0	38	0	38	0	NCPLX	0.0	0.1	0.0	0.0	0.0	49	9,610	1.5	0.9
T-Farm	**2**	**126,500**			**28**	**1,842**	**0**	**1,870**	**137**		**201.9**	**8.3**	**0.0**	**0.2**	**23.8**	**97,721**	**605,460**	**159,403.5**	**432,073.3**
TX-101			S		3	84	0	87	0	NCPLX	12.5	1.8	0.0	0.2	1.3	17,800	86,800	72,100.0	250,000.0
TX-102			S		0	0	217	217	0	NCPLX	128.0	17.9	0.2	2.0	1.6	42,900	428,000	155,000.0	69,500.0
TX-103			S		0	157	0	157	0	NCPLX	43.6	6.1	0.1	0.6	0.1	30,500	311,000	56,200.0	20,800.0
TX-104			S		1	0	64	65	0	NCPLX	27.4	4.0	0.1	0.4	0.1	13,100	108,000	40,600.0	14,900.0
TX-105			L		0	0	609	609	0	NCPLX	360.0	50.5	0.7	5.2	0.5	121,000	1,210,000	437,000.0	168,000.0
TX-106			S		0	0	453	453	0	NCPLX	197.0	27.7	0.4	2.9	1.3	67,500	674,000	244,000.0	112,000.0
TX-107		2,500	L		1	0	35	36	0	NCPLX	3.2	0.5	0.0	0.0	0.2	7,170	81,900	24,200.0	1,710.0
TX-108			S		0	0	134	134	0	NCPLX	58.5	8.2	0.1	0.8	0.2	28,000	280,000	92,000.0	27,100.0
TX-109			S		0	0	384	384	0	NCPLX	1.2	0.2	0.0	0.0	9.3	16,100	135,000	12,100.0	110,000.0
TX-110			L		0	0	462	462	0	NCPLX	219.0	30.7	0.4	3.4	1.2	85,600	852,000	305,000.0	120,000.0
TX-111			S		0	0	370	370	0	NCPLX	184.0	25.8	0.4	2.9	3.1	66,500	661,000	235,000.0	103,000.0
TX-112			S		0	0	649	649	0	NCPLX	372.0	52.1	0.7	5.4	0.6	124,000	1,290,000	448,000.0	174,000.0
TX-113			L		0	0	607	607	0	NCPLX	243.0	34.2	0.5	3.7	0.6	91,500	902,000	309,000.0	133,000.0
TX-114			L		0	0	535	535	0	NCPLX	275.0	38.6	0.5	4.2	0.6	94,700	1,080,000	408,000.0	142,000.0
TX-115			L		0	0	640	640	0	NCPLX	335.0	47.0	0.6	4.9	1.4	112,000	1,120,000	407,000.0	157,000.0
TX-116			L		0	0	631	631	0	NCPLX	125.0	17.5	0.2	1.8	0.8	14,000	1,720,000	247,000.0	66,000.0
TX-117			L		0	0	626	626	0	NCPLX	174.0	24.4	0.3	2.5	0.6	82,000	1,210,000	315,000.0	86,000.0
TX-118			S		0	0	347	347	0	NCPLX	98.5	13.8	0.2	1.4	0.2	51,600	538,000	186,000.0	48,400.0
TX-Farm	**0**	**2,500**			**5**	**241**	**6,763**	**7,009**	**0**		**2856.8**	**401.1**	**5.5**	**42.4**	**23.7**	**1,063,970**	**12,647,700**	**3,993,200.0**	**1,803,410.0**
TY-101		1,000	L		0	118	0	118	0	NCPLX	5.4	0.6	0.0	0.0	0.6	8,520	106,000	172.0	7,470.0
TY-102			S		0	0	64	64	0	NCPLX	0.4	0.4	0.0	0.3	0.0	7,350	150,000	1,260.0	1,720.0
TY-103		3,000	L		0	162	0	162	0	NCPLX	16.4	1.0	0.0	0.4	8.0	42,200	149,000	14,900.0	94,300.0
TY-104		1,400	L		3	43	0	46	0	NCPLX	9.1	0.9	0.0	0.0	1.9	3,590	13,700	11,000.0	31,800.0
TY-105		35,000	L		0	231	0	231	0	NCPLX	44.0	1.1	0.0	0.1	10.9	7,730	236,000	10,500.0	258,000.0
TY-106		20,000	L		0	17	0	17	0	NCPLX	10.7	0.1	0.0	0.0	0.2	619	14,900	1,590.0	9,760.0
TY-Farm	**0**	**60,400**			**3**	**571**	**64**	**638**	**0**		**85.9**	**4.2**	**0.1**	**0.8**	**19.7**	**70,009**	**671,600**	**39,422.0**	**401,050.0**
U-101		30,000	L		3	22	0	25	0	NCPLX	0.2	0.2	0.0	0.0	0.4	4,490	18,100	11,400.0	42,500.0
U-102			S	N	18	43	314	375	168	NCPLX	350.0	49.5	0.7	4.9	0.8	107,000	668,000	370,000.0	166,000.0
U-103	HYD		S	N	13	12	443	468	218	NCPLX	444.0	62.7	0.9	6.2	1.1	177,000	632,000	400,000.0	271,000.0
U-104		55,000	L		0	122	0	122	0	NCPLX	32.7	4.9	0.1	0.6	0.7	16,600	118,000	51,500.0	77,200.0
U-105	HYD		S	N	37	32	349	418	204	NCPLX	446.0	62.9	0.9	6.3	1.9	180,000	752,000	404,000.0	154,000.0
U-106			S	N	15	0	211	226	98	NCPLX	297.0	42.0	0.6	4.1	0.3	68,700	286,000	215,000.0	106,000.0
U-107	HYD		S	N	31	15	360	406	196	DSSF	344.0	48.3	0.7	4.8	0.3	63,600	1,030,000	210,000.0	160,000.0
U-108	HYD		S	N	24	29	415	468	223	NCPLX	542.0	76.3	1.1	7.3	0.2	158,000	880,000	475,000.0	31,100.0
U-109	HYD		S	N	19	35	409	463	216	NCPLX	586.0	82.6	1.1	8.1	0.4	114,000	685,000	336,000.0	22,900.0
U-110		8,100	L		0	186	0	186	9	NCPLX	7.4	0.4	0.0	0.0	3.8	9,400	46,400	26,500.0	342,000.0
U-111			S	N	0	26	303	329	142	DSSF	230.0	32.3	0.4	3.2	1.1	84,500	547,000	248,000.0	266,000.0
U-112		8,500	L		4	45	0	49	0	NCPLX	0.5	0.1	0.0	0.0	0.9	1,170	16,300	19,100.0	67,600.0
U-201			S		1	4	0	5	0	NCPLX	0.0	0.0	0.0	0.0	0.0	518	2,130	1,120.0	4,710.0
U-202			S		1	4	0	5	0	NCPLX	0.0	0.0	0.0	0.0	0.0	518	2,130	1,120.0	4,710.0
U-203			S		1	2	0	3	0	NCPLX	0.2	0.0	0.0	0.0	0.0	258	1,070	560.0	2,350.0
U-204			S		1	2	0	3	0	NCPLX	0.0	0.0	0.0	0.0	0.0	30	119	39.3	0.1
U-Farm	**5**	**101,600**			**168**	**579**	**2,804**	**3,551**	**1,474**		**3280.0**	**462.2**	**6.3**	**45.5**	**11.8**	**965,784**	**5,684,249**	**2,769,339.3**	**1,718,070.1**
TOTAL	**23**	**910,250**	**67**	**30**	**1,585**	**12,030**	**21,499**	**35,114**	**6,357**		**19331.8**	**3090.7**	**41.5**	**470.4**	**245.9**	**7,436,559**	**42,878,407**	**23,333,480.8**	**37,922,085.8**

CC = complexant concentrate waste
Ci = curies
CP = concentrated phosphate waste
DC = dilute noncomplexed waste
DSSF = double-shell slurry feed
HH = high heat
HYD = hydrogen
NCPLX = noncomplexed waste
ORG = organics
Stabil = Tank is interim stabilized

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APPENDIX B

SINGLE-SHELL TANK WASTE RETRIEVAL SYSTEM DEFINITION AND IMPLEMENTATION AND HANFORD TANKS INITIATIVE TECHNICAL BASELINE

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APPENDIX B
SINGLE-SHELL TANK WASTE RETRIEVAL SYSTEM DEFINITION AND IMPLEMENTATION AND HANFORD TANKS INITIATIVE TECHNICAL BASELINE

B1.0 INTRODUCTION

This appendix provides an overview of the life cycle scope, schedule, logics and budget for two tank farm organizational subelements: (1) Single-Shell Tank (SST) Waste Retrieval System Definition and Implementation and (2) Hanford Tanks Initiative. Activities carried out under these two subelements will support both near- and long-term tank farm decisions, including SST waste retrieval, SST corrective measures, and tank farm closure.

B2.0 SCOPE, SCHEDULE, BUDGET

Printouts of the information for these activities are attached:

- Project logic
- A Work Breakdown Structure
- Life cycle schedule and cost data.

The Work Breakdown Structure depicts the scope of work performed by SST Waste Retrieval System Definition and Implementation and Hanford Tanks Initiative subelements. The Work Breakdown Structure is organized into the following three upper-level (i.e., Level 6) activities:

- SST Waste Retrieval Project Management
- SST Waste Retrieval System Definition
- SST Waste Retrieval System Demonstrations
- SST Waste Retrieval Projects Definition
- Hanford Tanks Initiative
- SST Technology Assessments
- Tank Farm Systems Upgrades
- Privatization
- Phase I SST Operations
- Phase II SST Operations
- Characterization
- Safety Basis
- Project W-523
- Project W-XXX (Double-Shell Tank Backfill).

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SST Retrieval Program

NOTES :

ACTR - Acquire Commercial Technology for Retrieval
AGA - Alternative Generation Analysis
DST- Double Shell Tank
EIS - Environmental Impact Statement
HLW- High Level Waste
HTI - Hanford Tanks Initiative
HTWOS - Hanford Tank Waste Operation Simulator
ICD - Interface Control Document
MAR - Mission Analysis Report
MUST - Miscellaneous Underground Storage Tank
OSD - Operational Specification Document
ORP - Office of River Protection
PDC- Project Design Criteria
RPECA - Retrieval Performance Evaluation Criteria Assessment
RPP - River Protection Project
SST - Single Shell Tank
TSR - Technical Safety Requirement
T&E - Test and Evaluation
USQ- Unreviewed Safety Question
WRF - Waste Retrieval Facility

Program Definition

Technology Evaluations

WRF/Capital Projects

Typical of SST Retrieval/Capital Projects

Phase 1 SST Retrieval Test Definition

Phase 2 Retrieval Test Definition

SST Retrieval/ Demonstration Projects

KEY:

PERFORMING ORGs

U.S. DEPARTMENT OF ENERGY
Office of River Protection (ORP)
LOCKHEED MARTIN HANFORD CORPORATION

SST Retrieval Program

RPP-5015 0

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.02	SST Process Development	1.01.04.01.02.02.01	Establish Dilution Requirements and Dissolution Behavior for S-105
						1.01.04.01.02.02.01	Prepare Initial SST Program Plan
						1.01.04.01.02.02.02	Review S-105 Historical Data and Determine if Additional Information is Required
						1.01.04.01.02.02.02	Update Program Plan, Deployment Plan, and Risk Analysis
						1.01.04.01.02.02.03	Establish Dilution Requirements and Dissolution Behavior for S-102
						1.01.04.01.02.02.04	Review S-102 Historical Data and Determine if Additional Information is Required
						1.01.04.01.02.02.05	Determine if Existing C-107 Data Meets DQO Needs
						1.01.04.01.02.02.06	Prepare SST Retrieval Program Test and Evaluation Plan
						1.01.04.01.02.02.07	Evaluate Retrieval Technology Solutions
						1.01.04.01.02.02.08	Define SST Retrieval Sequences
						1.01.04.01.02.02.09	Determine Retrieval Risks
						1.01.04.01.02.02.10	Determine Process Improvement Breakthroughs

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.02 (Cont'd)	SST Process Development	1.01.04.01.02.02.11	Retrieval Integrated Risk Studies
				1.01.04.01.02.03	SST Retrieval Systems Development	1.01.04.01.02.03.01	Define Technology Evaluation Strategy
						1.01.04.01.02.03.02	Mixing and Retrieval System Selection AGA
						1.01.04.01.02.03.03	Evaluate Leak Detection Solutions
						1.01.04.01.02.03.04	Assess Tank Conditions
						1.01.04.01.02.03.05	Assess SST Tank Farm Infrastructure System Needs
						1.01.04.01.02.03.06	Verify C Tank Farm Systems and Components Functionality
						1.01.04.01.02.03.07	Perform C Tank Farm Trade Studies
						1.01.04.01.02.03.08	Verify S Tank Farm Systems and Components Functionality
						1.01.04.01.02.03.09	Perform S Tank Farm Trade Studies
						1.01.04.01.02.03.10	Prepare SST Retrieval Licensing Strategy
						1.01.04.01.02.03.11	Perform SST Retrieval USQ Process
				1.01.04.01.02.04	SST Retrieval Project Definition	1.01.04.01.02.04.01	Update SST Level 1 Specification
						1.01.04.01.02.04.02	Finalize SST Level 1 Specification
						1.01.04.01.02.04.03	Prepare Project Definition Technical Basis and Project Definition Criteria for Project W-523

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.04 (Cont'd)	SST Retrieval Project Definition	1.01.04.01.02.04.04	Perform Acquisition Strategy for S Tank Farm
						1.01.04.01.02.04.05	Develop and Issue the SST Component Specifications
						1.01.04.01.02.04.06	Perform Acquisition Strategy for C Tank Farm
						1.01.04.01.02.04.07	Issue Criticality Safety Evaluation Report for SST Retrieval
						1.01.04.01.02.04.08	Update/Amend Authorization Basis for SST Retrieval
				1.01.04.01.02.05	Hanford Tanks Initiative	1.01.04.01.02.05.01	Perform Hanford Tanks Initiatives Activities
						1.01.04.01.02.05.11	SST Test and Demonstration Specification
						1.01.04.01.02.05.12	Acquire Cold Test Capabilities
						1.01.04.01.02.05.13	Salt Cake Dissolution Cold Tests
						1.01.04.01.02.05.14	Salt Cake Dissolution Hot Test Specification and Deployment Decision
						1.01.04.01.02.05.15	Confined Sluicing Cold Tests
						1.01.04.01.02.05.16	Confined Sluicing Hot Test Specification and Deployment Decision
						1.01.04.01.02.05.17	Salt Cake/Sludge Cold Test
						1.01.04.01.02.05.18	Salt Cake/Sludge Hot Test Specification and Deployment Decision

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.05 (Cont'd)	Hanford Tanks Initiative	1.01.04.01.02.05.19	Dry Retrieval Cold Tests
						1.01.04.01.02.05.20	Dry Retrieval Hot Test Specification and Deployment Decision
						1.01.04.01.02.05.21	Congested and Limited Access Cold Tests
						1.01.04.01.02.05.22	Congested and Limited Access Hot Test Specification and Deployment Decision
						1.01.04.01.02.05.23	MUST Retrieval Cold Tests
						1.01.04.01.02.05.24	MUST Retrieval Hot Test Specification and Deployment Decision
				1.01.04.01.02.06	SST Technology and Assessments	1.01.04.01.02.06.02	Update Best Basis Inventory and Tank Characterization Report for S-102
						1.01.04.01.02.06.03	Update Best Basis Inventory and Tank Characterization Report for S-105
						1.01.04.01.02.06.04	Update Best Basis Inventory and Tank Characterization Report for S-105
						1.01.04.01.02.06.05	Update Best Basis Inventory and Tank Characterization Report for C-107
						1.01.04.01.02.06.06	Update Best Basis Inventory and Tank Characterization Report for C-104

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.06 (Cont'd)	SST Technology and Assessments	1.01.04.01.02.06.07	Perform C-106 Limits of Technology Demonstration
						1.01.04.01.02.06.08	Salt Cake Dissolution Retrieval Demonstrations
						1.01.04.01.02.06.09	Confined Sluice Retrieval Demonstrations
						1.01.04.01.02.06.10	Salt Cake/Sludge Retrieval Demonstrations
						1.01.04.01.02.06.11	Dry Retrieval Demonstrations
						1.01.04.01.02.06.12	Congested and Limited Access Retrieval Demonstrations
						1.01.04.01.02.06.13	MUST Retrieval Demonstrations
				1.01.04.01.02.09	Phase I SST Operations	1.01.04.01.02.09.01.01	Sluice S-105 into SY-103
						1.01.04.01.02.09.01.02	Perform S-105 Intrusion Prevention
						1.01.04.01.02.09.02.01	Sluice C-104 into AY-102
						1.01.04.01.02.09.02.02	Perform C-104 Intrusion Prevention
						1.01.04.01.02.09.03.01	Sluice C-107 into AY-102
						1.01.04.01.02.09.03.02	Perform C-107 Intrusion Prevention
						1.01.04.01.02.09.04.01	Sluice S-102 into SY-103
						1.01.04.01.02.09.04.02	Perform S-102 Intrusion Prevention
				1.01.04.01.02.11	Characterization	1.01.04.01.02.11.01.01	Sample C-107 per BNFL, Inc. Requirements and Deliver Sample to BNFL, Inc.

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.11 (Cont'd)	Characterization	1.01.04.01.02.11.01.02	Sample and Analyze C-107 per RL/WIT Requirements
						1.01.04.01.02.11.01.03	Obtain C-107 Core Samples and Prepare Sub-Samples and Composites
						1.01.04.01.02.11.02.01	Sample S-105 per BNFL, Inc. Requirements and Deliver Sample to BNFL, Inc.
						1.01.04.01.02.11.02.02	Sample and Analyze S-105 per RL/WIT Requirements
						1.01.04.01.02.11.02.03	Sample S-105
						1.01.04.01.02.11.03.01	Sample S-102 per BNFL, Inc. Requirements and Deliver Sample to BNFL, Inc.
						1.01.04.01.02.11.03.02	Sample and Analyze S-102 per RL/WIT Requirements
						1.01.04.01.02.11.03.03	Sample S-102
						1.01.04.01.02.11.04.01	Sample C-104 per BNFL, Inc. Requirements and Deliver Sample to BNFL, Inc.
						1.01.04.01.02.11.04.02	Sample and Analyze C-104 per RL/WIT Requirements
				1.01.04.01.02.12	Safety Basis		
				1.01.04.01.02.13	W-523	1.01.04.01.02.13.01	Project Management for W-523
						1.01.04.01.02.13.02.01	Approve Project W-523 Mission Need (CD-1)

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.13 (Cont'd)	W-523	1.01.04.01.02.13.02.02	Validate Project W-523
						1.01.04.01.02.13.02.03	Prepare the W-523 Project Technical Baseline Document
						1.01.04.01.02.13.02.04	Design the C-104 Sluicing System and Obtain CD-3
						1.01.04.01.02.13.02.05	Perform Conceptual Design and Issue the SST O&M Concept for the W-523 Sluicing Retrieval System
						1.01.04.01.02.13.02.06	Construct the C-104 Sluicing Retrieval System
						1.01.04.01.02.13.02.07	Procure Equipment for the C-104 Sluicing Retrieval System
						1.01.04.01.02.13.02.08	Repair/Upgrade Existing C Tank Farm Systems
						1.01.04.01.02.13.02.09	Startup and Test the C-104 Sluicing Retrieval System
						1.01.04.01.02.13.02.10	Perform Contractor Independent Operational Readiness Review for C-104
						1.01.04.01.02.13.02.11	Perform Management Self-Assessment for the C-104 Sluicing Retrieval System
						1.01.04.01.02.13.02.12	Perform DOE-RL Operational Readiness Review and Obtain CD-4 for C-104
						1.01.04.01.02.13.02.13	Prepare Process Control Plan for C-104

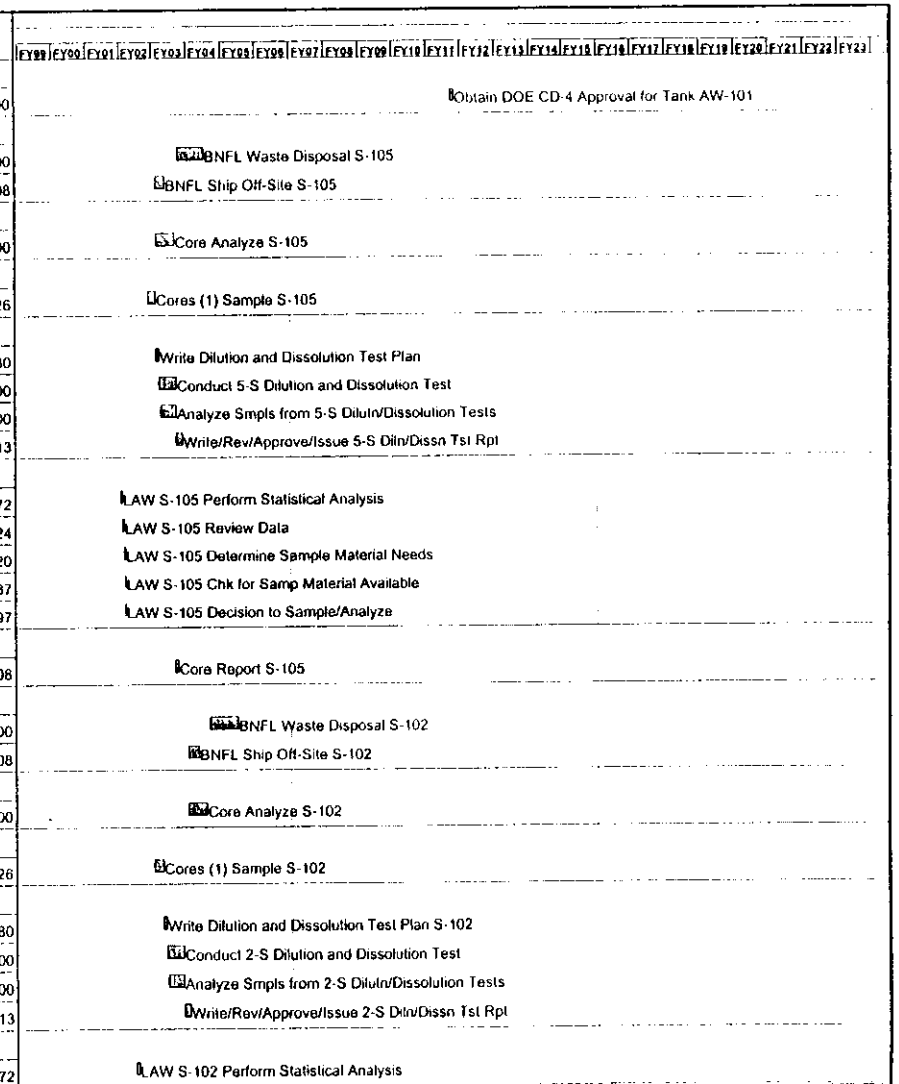
PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval	1.01.04.01.02.13 (Cont'd)	W-523	1.01.04.01.02.13.03.01	Perform and Document C-107 Sample Analyses and Rheology Testing
						1.01.04.01.02.13.03.02	Design the C-107 Sluicing Retrieval System and Obtain CD-3
						1.01.04.01.02.13.03.03	Construct the C-107 Sluicing Retrieval System
						1.01.04.01.02.13.03.04	Procure Equipment for the C-107 Sluicing Retrieval System
						1.01.04.01.02.13.03.05	Startup and Test the C-107 Sluicing Retrieval System
						1.01.04.01.02.13.03.06	Perform Contractor Standard Startup Review for C-107
						1.01.04.01.02.13.03.07	Perform Management Self-Assessment for the C-107 Sluicing Retrieval System
						1.01.04.01.02.13.03.08	Provide CD-4 Approval for C-107
						1.01.04.01.02.13.03.09	Prepare Process Control Plan for C-107
						1.01.04.01.02.13.04.01	Construct the S-105 Sluicing Retrieval System
						1.01.04.01.02.13.04.02	Design the S-102 Sluicing Retrieval System and Obtain CD-3
						1.01.04.01.02.13.04.03	Procure Equipment for the S-102 Sluicing Retrieval System
						1.01.04.01.02.13.04.04	Repair/Upgrade Existing S Tank Farm Systems

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.13 (Cont'd)	W-523	1.01.04.01.02.13.04.05	Construct the S-102 Sluicing Retrieval System
						1.01.04.01.02.13.04.06	Startup and Test the S-102 Sluicing Retrieval System
						1.01.04.01.02.13.04.07	Perform Contractor Standard Startup Review for S-102
						1.01.04.01.02.13.04.08	Provide CD-4 Approval for S-102
						1.01.04.01.02.13.04.09	Perform Management Self-Assessment for the S-102 Sluicing Retrieval System
						1.01.04.01.02.13.04.10	Prepare Process Control Plan for S-102
						1.01.04.01.02.13.05.01	Design the S-105 Sluicing Retrieval System and Obtain CD-3
						1.01.04.01.02.13.05.02	Procure Equipment for the S-105 Sluicing Retrieval System
						1.01.04.01.02.13.05.03	Startup and Test the S-105 Sluicing Retrieval System
						1.01.04.01.02.13.05.04	Perform Contractor Standard Startup Review for S-105
						1.01.04.01.02.13.05.05	Provide CD-4 Approval for S-105
						1.01.04.01.02.13.05.06	Perform Management Self-Assessment for the S-105 Sluicing Retrieval System

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.02	SST Waste Retrieval				
				1.01.04.01.02.13 (Cont'd)	W-523	1.01.04.01.02.13.05.07	Prepare Process Control Plan for S-105
				1.01.04.01.03.01	Closure/Vadose Zone Project Management	1.01.04.01.03.01.01	Manage Retrieval Vadose Zone and Closure Activities

AGA = alternatives generation and analysis
DQO = data quality objective
PBS = Project Baseline Summary
RL = U.S. Department of Energy, Richland Operations Office
SST = single-shell tank
USQ = unreviewed safety question
WIT = waste integration team

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
120.G75 Provide CD-4 Approval for AW-101				
12G75A	Obtain DOE CD-4 Approval for Tank AW-101	27JUN11	26JUL11	0.00
120.I01 Samp S-105 per BNFL Rqmts/Deliver Samp to BNFL				
12I01S56	BNFL Waste Disposal S-105	17JUN03	31MAR04	125,050.00
12I01S56	BNFL Ship Off-Site S-105	01NOV02	10FEB03	83,816.08
120.I03 Samp/Analyze S-105 per RL/WIT Rqmts				
12I03S56	Core Analyze S-105	01NOV02	09MAY03	405,040.00
120.I05 Sample S-105				
12I05S56	Cores (1) Sample S-105	01AUG02*	31OCT02	807,969.26
120.I10 Estblsh Dilution Rqmts/Dissolution Behavior S-105				
12I10A	Write Dilution and Dissolution Test Plan	01NOV02	03DEC02	8,913.80
12I10C	Conduct 5-S Dilution and Dissolution Test	04DEC02	04JUN03	46,907.00
12I10D	Analyze Smpls from 5-S Dilutn/Dissolution	18DEC02	04JUN03	231,800.00
12I10E	Write/Rev/Approve/Issue 5-S Diln/Dissn Tst Rpt	05JUN03	05AUG03	28,768.13
120.I15 Review S-105 Hist Data/Determine Add Info. Reqd				
12I15A	LAW S-105 Perform Statistical Analysis	01OCT01*	30OCT01	14,790.72
12I15B	LAW S-105 Review Data	31OCT01	13NOV01	9,328.24
12I15C	LAW S-105 Determine Sample Material Needs	14NOV01	20NOV01	3,385.20
12I15D	LAW S-105 Chk for Samp Material Available	21NOV01	29NOV01	569.37
12I15E	LAW S-105 Decision to Sample/Analyze	30NOV01	03DEC01	7,162.97
120.I25 Update BBI/Tank Characterization Rprt for S-105				
12I25S56	Core Report S-105	12MAY03	17JUN03	32,178.08
120.Z01 Samp S-102 per BNFL Rqmts/Deliver Samp BNFL				
12Z01S5	BNFL Waste Disposal S-102	17MAY04	02MAR05	125,050.00
12Z01S5	BNFL Ship Off-Site S-102	03OCT03	12JAN04	83,816.08
120.Z03 Sample/Analyze S-102 per RL/WIT Requirements				
12Z03S5	Core Analyze S-102	03OCT03	09APR04	405,040.00
120.Z05 Sample S-102				
12Z05S5	Cores (1) Sample S-102	01OCT02*	08JAN03	807,969.26
120.Z10 Estblsh Dilution Rqmts/Dissolution Behavior S-102				
12Z10A	Write Dilution and Dissolution Test Plan S-102	07JAN03	04FEB03	8,913.80
12Z10C	Conduct 2-S Dilution and Dissolution Test	05FEB03	05AUG03	46,907.00
12Z10D	Analyze Smpls from 2-S Dilutn/Dissolution	20FEB03	05AUG03	231,800.00
12Z10E	Write/Rev/Approve/Issue 2-S Diln/Dissn Tst Rpt	06AUG03	03OCT03	28,768.13
120.Z15 Review S-102 Hist Data/Determine Add Info. Reqd				
12Z15A	LAW S-102 Perform Statistical Analysis	01MAR02*	01APR02	14,790.72



Project Start 01OCT97
Project Finish 21OCT19
Data Date 01OCT97
Run Date 29SEP99

Early Bar
Progress Bar
Critical Activity

RPPD

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LMHC
RTP2
by WBS Level 6

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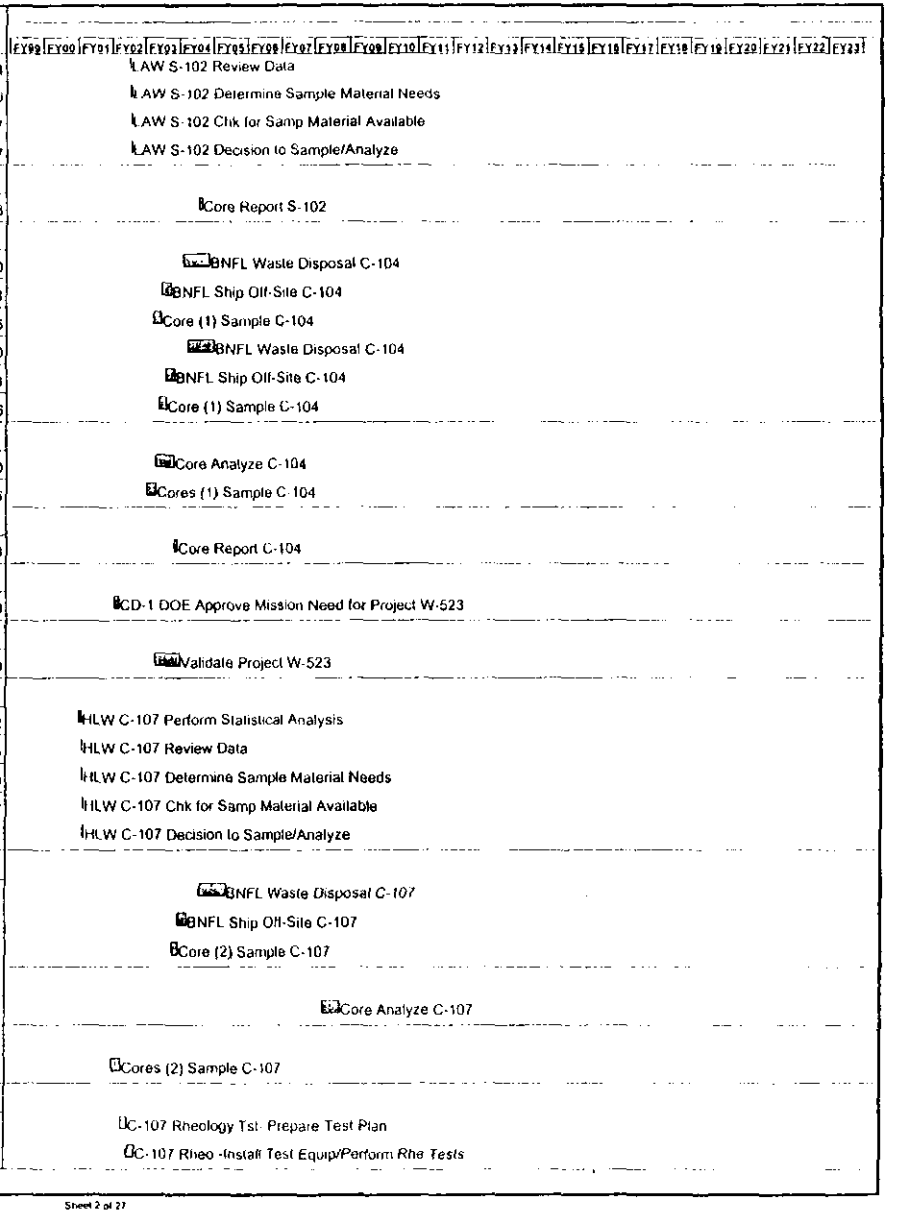
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
12Z15B	LAW S-102 Review Data	02APR02	15APR02	9,328.24
12Z15C	LAW S-102 Determine Sample Material Needs	16APR02	22APR02	3,385.20
12Z15D	LAW S-102 Chk for Samp Material Available	23APR02	29APR02	569.37
12Z15E	LAW S-102 Decision to Sample/Analyze	30APR02	01MAY02	7,162.97
120.Z25 Update BBI/Tank Characterization Rpt for S-102				
12Z25S5	Core Report S-102	12APR04	17MAY04	32,178.08
160.J03 Sample C-104 per BNFL Rqmts/Delvr Samp to BNFL				
16J03C1	BNFL Waste Disposal C-104	23OCT03	06AUG04	125,050.00
16J03C1	BNFL Ship Off-Site C-104	14MAR03	17JUN03	83,816.08
16J03C1	Core (1) Sample C-104	09DEC02*	13MAR03	807,969.26
16J03C1	BNFL Waste Disposal C-104	10DEC03	22SEP04	125,050.00
16J03C1	BNFL Ship Off-Site C-104	29APR03	04AUG03	83,816.08
16J03C1	Core (1) Sample C-104	27JAN03*	28APR03	807,969.26
160.J04 Sample and Analyze C-104 per RL/WIT Rqmts				
16J04C0	Core Analyze C-104	07JAN03	11JUL03	202,520.00
16J04C0	Cores (1) Sample C-104	01OCT02*	06JAN03	807,969.26
160.J12 Update BBI/Tank Characterization Rprt for C-104				
16J12C0	Core Report C-104	14JUL03	18AUG03	32,178.08
160.J56 Approve Project W-523 Mission Need (CD-1)				
16J56A	CD-1 DOE Approve Mission Need for Project	17OCT01*	20DEC01	0.00
160.J58 Validate Project W-523				
16J58A	Validate Project W-523	26DEC02*	16SEP03	0.00
160.Q00 Dtrmn If Existing C-107 Data Meets DQO Needs				
16Q00A	HLW C-107 Perform Statistical Analysis	02OCT00*	31OCT00	14,790.72
16Q00B	HLW C-107 Review Data	01NOV00	14NOV00	9,328.24
16Q00C	HLW C-107 Determine Sample Material Needs	15NOV00	21NOV00	3,385.20
16Q00D	HLW C-107 Chk for Samp Material Available	22NOV00	30NOV00	569.37
16Q00E	HLW C-107 Decision to Sample/Analyze	01DEC00	04DEC00	7,162.97
160.Q03 Samp C-107 per BNFL Rqmts/Deliver Samp to BNFL				
16Q03C1	BNFL Waste Disposal C-107	26APR04	08FEB05	125,050.00
16Q03C1	BNFL Ship Off-Site C-107	12SEP03	17DEC03	83,816.08
16Q03C1	Core (2) Sample C-107	01JUL03*	11SEP03	1,605,945.87
160.Q04 Sample and Analyze C-107 per RL/WIT Rqmts				
16Q04C1	Core Analyze C-107	20DEC07	26JUN08	1,012,600.00
160.Q05 Obtain C-107 Core Samp/Prep Sub-Samp/Composites				
16Q05C1	Cores (2) Sample C-107	01OCT01*	21JAN02	1,605,945.87
160.Q10 Perf/Document C-107 Samp Analyses/Rheology Tstng				
16Q10A	C-107 Rheology Tst- Prepare Test Plan	22JAN02	19MAR02	42,387.24
16Q10C	C-107 Rheo -Install Test Equip/Perform Rhe	20MAR02	19JUN02	37,828.40



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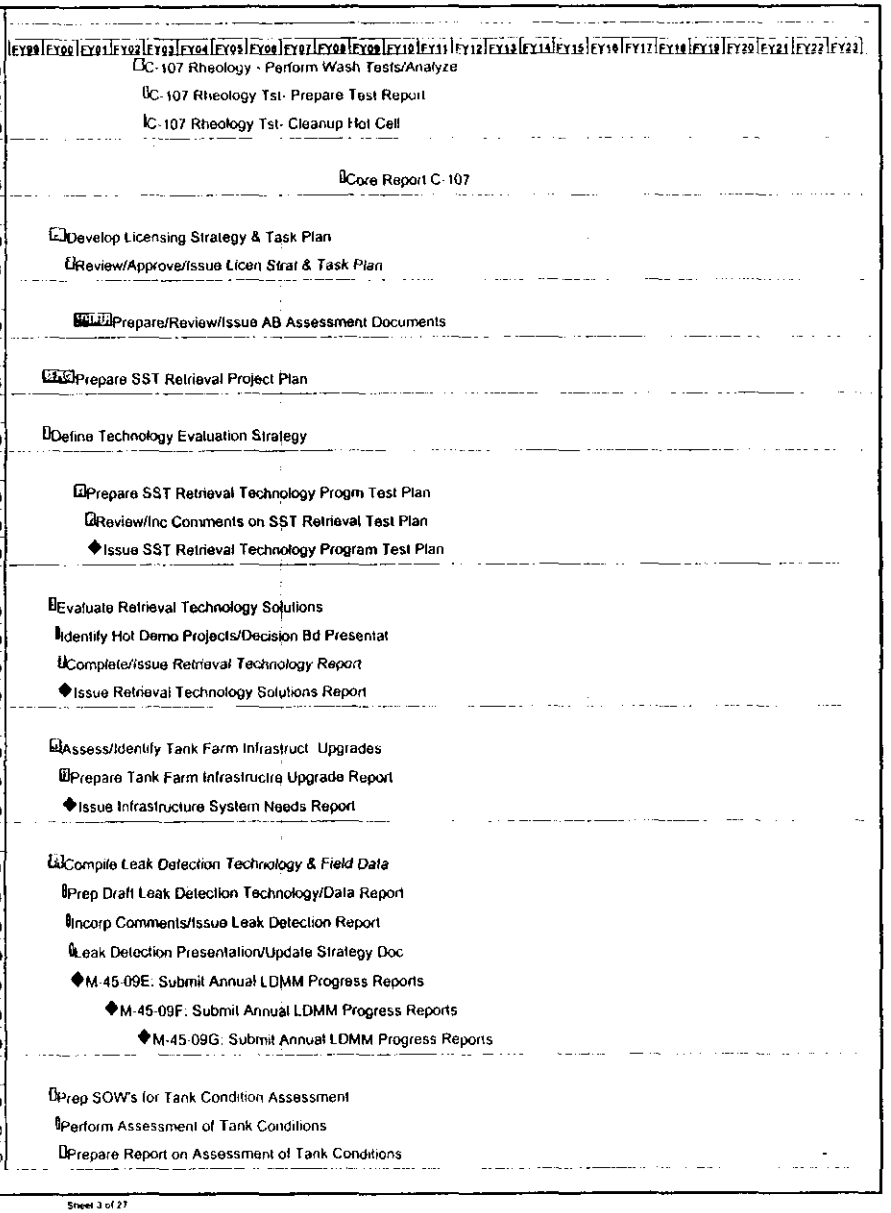
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
16Q10D	C-107 Rheology - Perform Wash Tests/Analyze	20JUN02	16SEP02	84,225.60
16Q10E	C-107 Rheology Tst- Prepare Test Report	17SEP02	04NOV02	31,170.62
16Q10F	C-107 Rheology Tst- Cleanup Hot Cell	17SEP02	07OCT02	8,169.20
160.Q12 Update BBI/Tank Characterization Rpt for C-107				
16Q12C1	Core Report C-107	27JUN08	05AUG08	64,356.16
270.105 Prepare SST Retrieval Licensing Strategy				
27105A	Develop Licensing Strategy & Task Plan	13DEC99	02JUN00	97,984.40
27105B	Review/Approve/Issue Licen Strat & Task Plan	05JUN00	29AUG00	23,226.08
270.110 Perform SST Retrieval USQ Process				
27110A	Prepare/Review/Issue AB Assessment	30AUG00	09OCT01	293,094.30
270.210 Prepare Initial SST Program Plan				
27210A	Prepare SST Retrieval Project Plan	01OCT99*	31AUG00	417,084.26
270.215 Define Technology Evaluation Strategy				
27215A	Define Technology Evaluation Strategy	01OCT99*	10DEC99	130,776.00
270.310 Prepare SST Retrieval Prog Test/Evaluation Plan				
27310A	Prepare SST Retrieval Technology Progm Test	01SEP00	28DEC00	209,241.60
27310B	Review/Inc Comments on SST Retrieval Test	29DEC00	02APR01	143,660.80
27310BM	Issue SST Retrieval Technology Program Test		02APR01	0.00
270.610 Evaluate Retrieval Technology Solutions				
27610A	Evaluate Retrieval Technology Solutions	13DEC99	16FEB00	393,484.80
27610B	Identify Hot Demo Projects/Decision Bd	17FEB00	14MAR00	49,185.60
27610C	Complete/Issue Retrieval Technology Report	15MAR00	02JUN00	65,580.80
27610CM	Issue Retrieval Technology Solutions Report		02JUN00	0.00
270.615 Assess SST Tank Farm Infrastructure Sys Needs				
27615A	Assess/Identify Tank Farm Infrastruct.	13DEC99	30MAR00	184,446.00
27615B	Prepare Tank Farm Infrastructre Upgrade	31MAR00	18JUL00	184,446.00
27615BM	Issue Infrastructure System Needs Report		18JUL00	0.00
270.620 Evaluate Leak Detection Solutions				
27620A	Compile Leak Detection Technology & Field	13DEC99	04MAY00	245,928.00
27620B	Prep Draft Leak Detection Technology/Data	05MAY00	16JUN00	8,197.60
27620C	Incorp Comments/Issue Leak Detection Report	19JUN00	11JUL00	8,197.60
27620D	Leak Detection Presentation/Update Strategy	12JUL00	15AUG00	8,197.60
27620DM	M-45-09E: Submit Annual LDMM Progress		30SEP00*	0.00
27620DN	M-45-09F: Submit Annual LDMM Progress		30SEP01*	0.00
27620DP	M-45-09G: Submit Annual LDMM Progress		30SEP02*	0.00
270.630 Assess Tank Conditions				
27630A	Prep SOW's for Tank Condition Assessment	13DEC99	09FEB00	40,988.00
27630B	Perform Assessment of Tank Conditions	10FEB00	23MAR00	81,976.00
27630C	Prepare Report on Assessment of Tank	24MAR00	18MAY00	16,395.20



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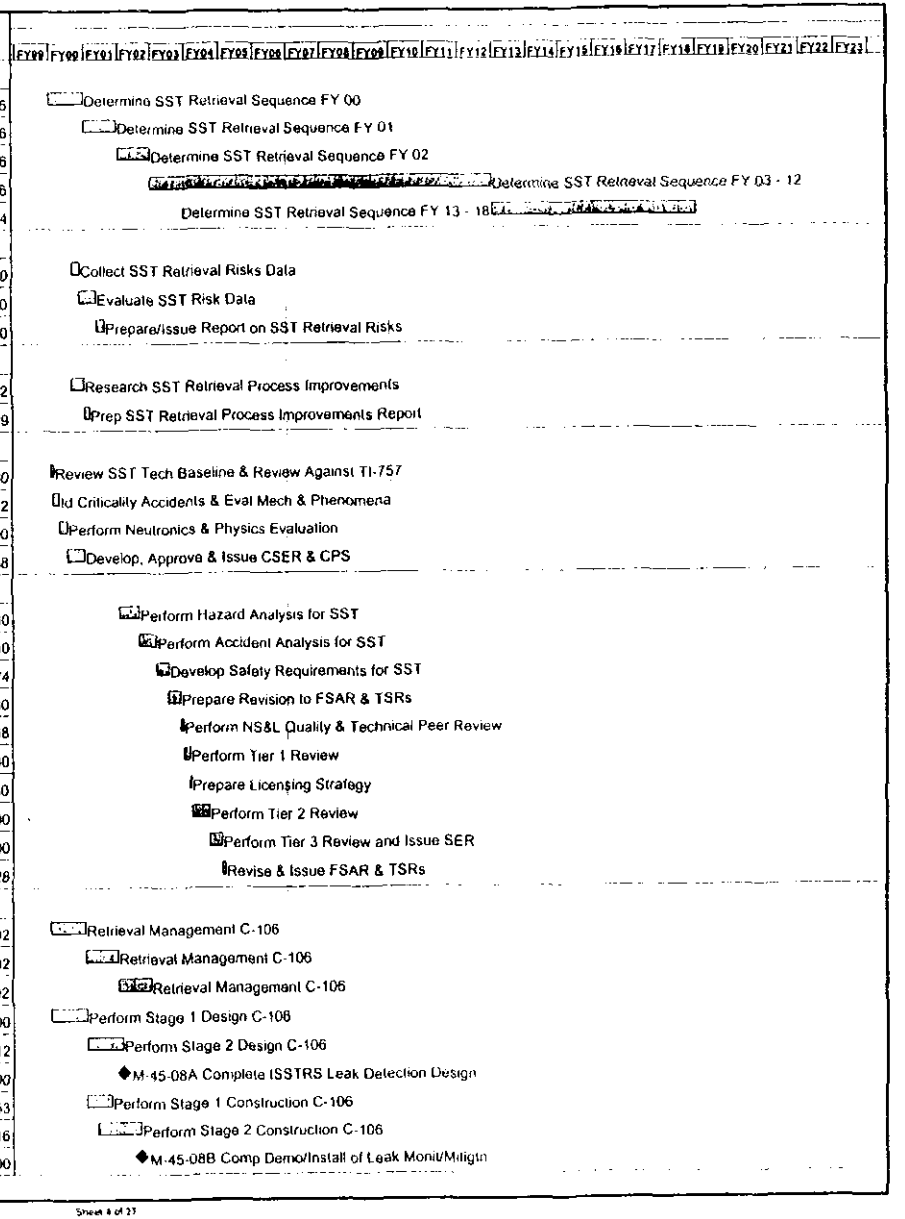
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
270.640 Define SST Retrieval Sequences				
27640A1	Determine SST Retrieval Sequence FY 00	01OCT99*	29SEP00	189,749.66
27640A2	Determine SST Retrieval Sequence FY 01	02OCT00	28SEP01	189,749.66
27640A3	Determine SST Retrieval Sequence FY 02	01OCT01	30SEP02	189,749.66
27640A4	Determine SST Retrieval Sequence FY 03 - 12	01OCT02	28SEP12	1,897,496.56
27640A5	Determine SST Retrieval Sequence FY 13 - 18	01OCT12	28SEP18	1,138,497.94
270.650 Determine Retrieval Risks				
27650A	Collect SST Retrieval Risks Data	19MAY00	17AUG00	244,000.00
27650B	Evaluate SST Risk Data	18AUG00	21FEB01	488,000.00
27650C	Prepare/Issue Report on SST Retrieval Risks	22FEB01	18MAY01	244,000.00
270.660 Determine Process Improvement Breakthroughs				
27660A	Research SST Retrieval Process Improvements	01JUN00*	02OCT00	121,163.42
27660B	Prep SST Retrieval Process Improvements	03OCT00	20NOV00	161,355.29
270.C01 Issue Criticality Safety Evaluation Rpt SST Retr				
27C01A	Review SST Tech Baseline & Review Against	01OCT99*	11NOV99	44,832.80
27C01B	Id Criticality Accidents & Eval Mech &	12NOV99	13JAN00	31,949.32
27C01C	Perform Neutronics & Physics Evaluation	14JAN00	07APR00	60,756.00
27C01D	Develop, Approve & Issue CSER & CPS	10APR00	28SEP00	113,196.38
270.C16 Update/Amend AB for SST Retrieval				
27C16A	Perform Hazard Analysis for SST	10OCT01*	16MAY02	208,824.40
27C16B	Perform Accident Analysis for SST	17MAY02	06NOV02	221,332.40
27C16C	Develop Safety Requirements for SST	07NOV02	20MAR03	172,876.74
27C16D	Prepare Revision to FSAR & TSRs	21MAR03	29JUL03	111,592.80
27C16E	Perform NS&L Quality & Technical Peer Review	30JUL03	10SEP03	39,321.68
27C16F	Perform Tier 1 Review	11SEP03	19NOV03	103,134.80
27C16G	Prepare Licensing Strategy	20NOV03	05DEC03	8,832.80
27C16H	Perform Tier 2 Review	08DEC03	27MAY04	467,851.90
27C16J	Perform Tier 3 Review and Issue SER	28MAY04	06OCT04	277,502.00
27C16K	Revise & Issue FSAR & TSRs	07OCT04	17NOV04	16,281.28
280.105 Perform C-106 Limits of Technology Demonstration				
28105A1	Retrieval Management C-106	01OCT99*	29SEP00	4,007,419.92
28105A2	Retrieval Management C-106	02OCT00*	28SEP01	293,739.92
28105A3	Retrieval Management C-106	01OCT01*	30SEP02	293,739.92
28105BA	Perform Stage 1 Design C-106	01OCT99*	20OCT00	391,620.00
28105BB	Perform Stage 2 Design C-106	23OCT00	02NOV01	480,126.12
28105BB	M-45-08A Complete ISSTRS Leak Detection		02NOV01	0.00
28105CA	Perform Stage 1 Construction C-106	23OCT00	11JUL01	1,628,479.53
28105CB	Perform Stage 2 Construction C-106	12FEB01	22MAY02	6,258,364.16
28105CB	M-45-08B Comp Demo/Install of Leak		22MAY02	0.00



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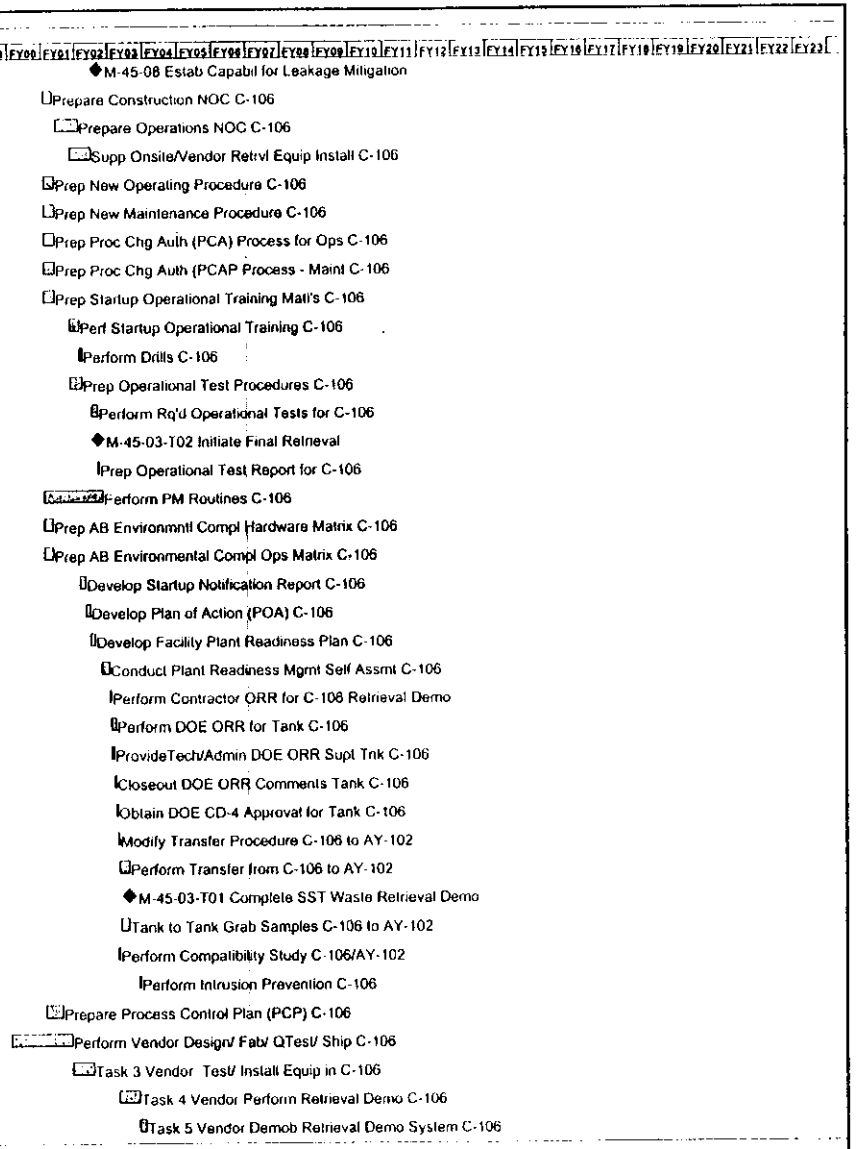
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28105CB	M-45-08 Estab Capabil for Leakage Mitigation		22MAY02	0.00
28105DA	Prepare Construction NOC C-106	23OCT00	22JAN01	15,453.38
28105DB	Prepare Operations NOC C-106	28FEB01	02NOV01	31,931.71
28105E	Supp Onsite/Vendor Retrvl Equip Install C-106	08AUG01	15MAR02	1,190,502.09
28105FA	Prep New Operating Procedure C-106	23OCT00	23FEB01	414,497.70
28105FB	Prep New Maintenance Procedure C-106	23OCT00	23FEB01	343,125.75
28105FC	Prep Proc Chg Auth (PCA) Process for Ops	23OCT00	23FEB01	110,278.64
28105FD	Prep Proc Chg Auth (PCAP Process - Maint	23OCT00	23FEB01	59,316.80
28105FE	Prep Startup Operational Training Matl's C-106	23OCT00	23FEB01	203,333.20
28105FF	Perf Startup Operational Training C-106	08AUG01	02NOV01	258,978.32
28105FG	Perform Drills C-106	05NOV01	05DEC01	64,649.61
28105FH	Prep Operational Test Procedures C-106	08AUG01	06DEC01	151,192.08
28105FJ	Perform Rq'd Operational Tests for C-106	26MAR02	22MAY02	412,783.80
28105FJ	M-45-03-T02 Initiate Final Retrieval	23MAY02		0.00
28105FK	Prep Operational Test Report for C-106	23MAY02	21JUN02	42,516.75
28105FM	Perform PM Routines C-106	23OCT00	11JUL02	282,545.50
28105FN	Prep AB Environmntl Compl Hardware Matrix	23OCT00	23JAN01	71,981.93
28105FP	Prep AB Environmental Compl Ops Matrix	23OCT00	23JAN01	72,050.85
28105GA	Develop Startup Notification Report C-106	05NOV01	14JAN02	23,740.52
28105GB	Develop Plan of Action (POA) C-106	15JAN02	12MAR02	9,233.76
28105GD	Develop Facility Plant Readiness Plan C-106	13MAR02	23APR02	41,385.04
28105GE	Conduct Plant Readiness Mgmt Self Assmt	24JUN02	18SEP02	420,791.76
28105H	Perform Contractor ORR for C-106 Retrieval	19SEP02	16OCT02	253,340.80
28105JA	Perform DOE ORR for Tank C-106	17OCT02	20NOV02	0.00
28105JB	ProvideTech/Admin DOE ORR Supt Tnk C-106	17OCT02	06NOV02	81,188.20
28105JC	Closeout DOE ORR Comments Tank C-106	07NOV02	20NOV02	11,333.54
28105JD	Obtain DOE CD-4 Approval for Tank C-106	21NOV02	13DEC02	0.00
28105KA	Modify Transfer Procedure C-106 to AY-102	16DEC02	31DEC02	15,646.38
28105KB	Perform Transfer from C-106 to AY-102	02JAN03	17APR03	1,810,045.68
28105KB	M-45-03-T01 Complete SST Waste Retrieval		17APR03	0.00
28105KC	Tank to Tank Grab Samples C-106 to AY-102	23JAN03	17APR03	223,232.88
28105KD	Perform Compatibility Study C-106/AY-102	16DEC02	31DEC02	7,704.08
28105L	Perform Intrusion Prevention C-106	16JUL03	12AUG03	96,457.88
28105P	Prepare Process Control Plan (PCP) C-106	23OCT00	26APR01	169,165.52
28105TA	Perform Vendor Design/ Fab/ QTest/ Ship	01OCT99*	07AUG01	9,080,973.68
28105TB	Task 3 Vendor Test/ Install Equip in C-106	08AUG01	15MAR02	2,155,905.92
28105TC	Task 4 Vendor Perform Retrieval Demo C-106	16DEC02	15JUL03	1,534,355.04
28105TD	Task 5 Vendor Demob Retrieval Demo System	16JUL03	24SEP03	351,848.00



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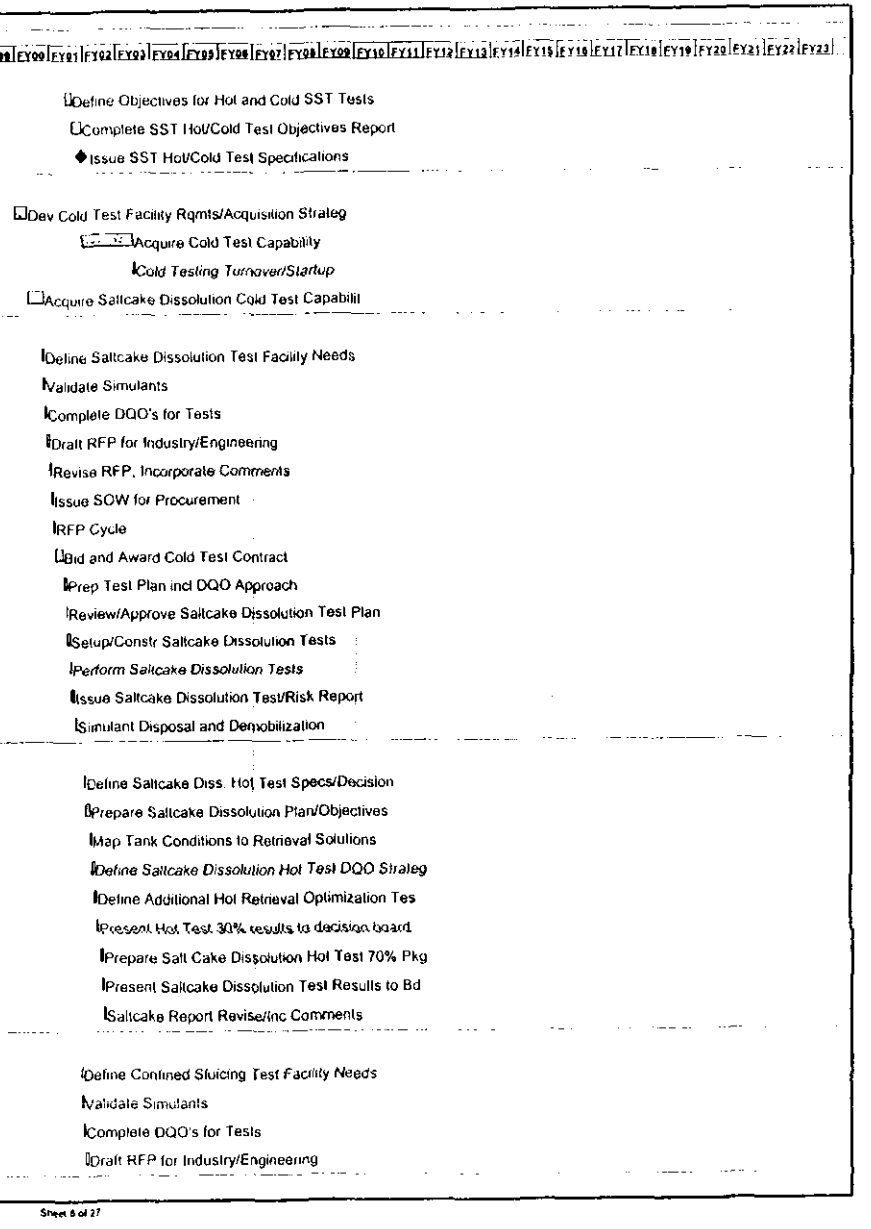
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
280.205	**SST Test and Demonstration Specification**			
28205A	Define Objectives for Hot and Cold SST Tests	03APR01*	19JUN01	106,761.60
28205B	Complete SST Hot/Cold Test Objectives Report	20JUN01	13SEP01	98,371.20
28205BM	Issue SST Hot/Cold Test Specifications		13SEP01	0.00
280.210	**Acquire Cold Test Capability**			
28210A	Dev Cold Test Facility Rqmts/Acquisition	01OCT99*	10FEB00	43,128.80
28210B	Acquire Cold Test Capability	14SEP01	17MAR03	1,346,820.00
28210C	Cold Testing Turnover/Startup	18MAR03	14APR03	25,714.52
28210D	Acquire Saltcake Dissolution Cold Test Capabilit	11FEB00	02AUG00	335,500.00
280.215	**Saltcake Dissolution Cold Tests**			
28215A	Define Saltcake Dissolution Test Facility Needs	20JUL00	02AUG00	4,880.00
28215B	Validate Simulants	03AUG00	09AUG00	2,440.00
28215C	Complete DQO's for Tests	10AUG00	07SEP00	9,760.00
28215D	Draft RFP for Industry/Engineering	08SEP00	05OCT00	9,760.00
28215E	Revise RFP, Incorporate Comments	06OCT00	26OCT00	7,320.00
28215F	Issue SOW for Procurement	27OCT00	02NOV00	2,440.00
28215G	RFP Cycle	03NOV00	27NOV00	19,520.00
28215H	Bid and Award Cold Test Contract	28NOV00	23FEB01	9,760.00
28215J	Prep Test Plan incl DQO Approach	26FEB01	30MAR01	85,400.00
28215K	Review/Approve Saltcake Dissolution Test Plan	02APR01	13APR01	126,880.00
28215L	Setup/Constr Saltcake Dissolution Tests	16APR01	11MAY01	302,560.00
28215M	Perform Saltcake Dissolution Tests	14MAY01	04JUN01	446,520.00
28215N	Issue Saltcake Dissolution Test/Risk Report	05JUN01	02JUL01	70,760.00
28215P	Simulant Disposal and Demobilization	03JUL01	17JUL01	65,880.00
280.220	**Saltcake Dissol Hot Tst Spec/Deployment Decision**			
28220A	Define Saltcake Diss. Hot Test Specs/Decision	10OCT01	30OCT01	39,232.80
28220B	Prepare Saltcake Dissolution Plan/Objectives	31OCT01	13DEC01	78,465.60
28220C	Map Tank Conditions to Retrieval Solutions	14DEC01	02JAN02	26,155.20
28220D	Define Saltcake Dissolution Hot Test DQO	03JAN02	30JAN02	52,310.40
28220E	Define Additional Hot Retrieval Optimization Tes	31JAN02	14MAR02	78,465.60
28220F	Present Hot Test 30% results to decision board	15MAR02	21MAR02	13,077.60
28220G	Prepare Salt Cake Dissolution Hot Test 70%	22MAR02	02MAY02	65,388.00
28220H	Present Saltcake Dissolution Test Results to Bd	03MAY02	09MAY02	13,077.60
28220J	Saltcake Report Revise/Inc Comments	10MAY02	31MAY02	39,232.80
280.225	**Confined Sluicing Cold Tests**			
28225A	Define Confined Sluicing Test Facility Needs	14SEP01	27SEP01	4,880.00
28225B	Validate Simulants	28SEP01	04OCT01	2,440.00
28225C	Complete DQO's for Tests	05OCT01	01NOV01	9,760.00
28225D	Draft RFP for Industry/Engineering	02NOV01	03DEC01	9,760.00



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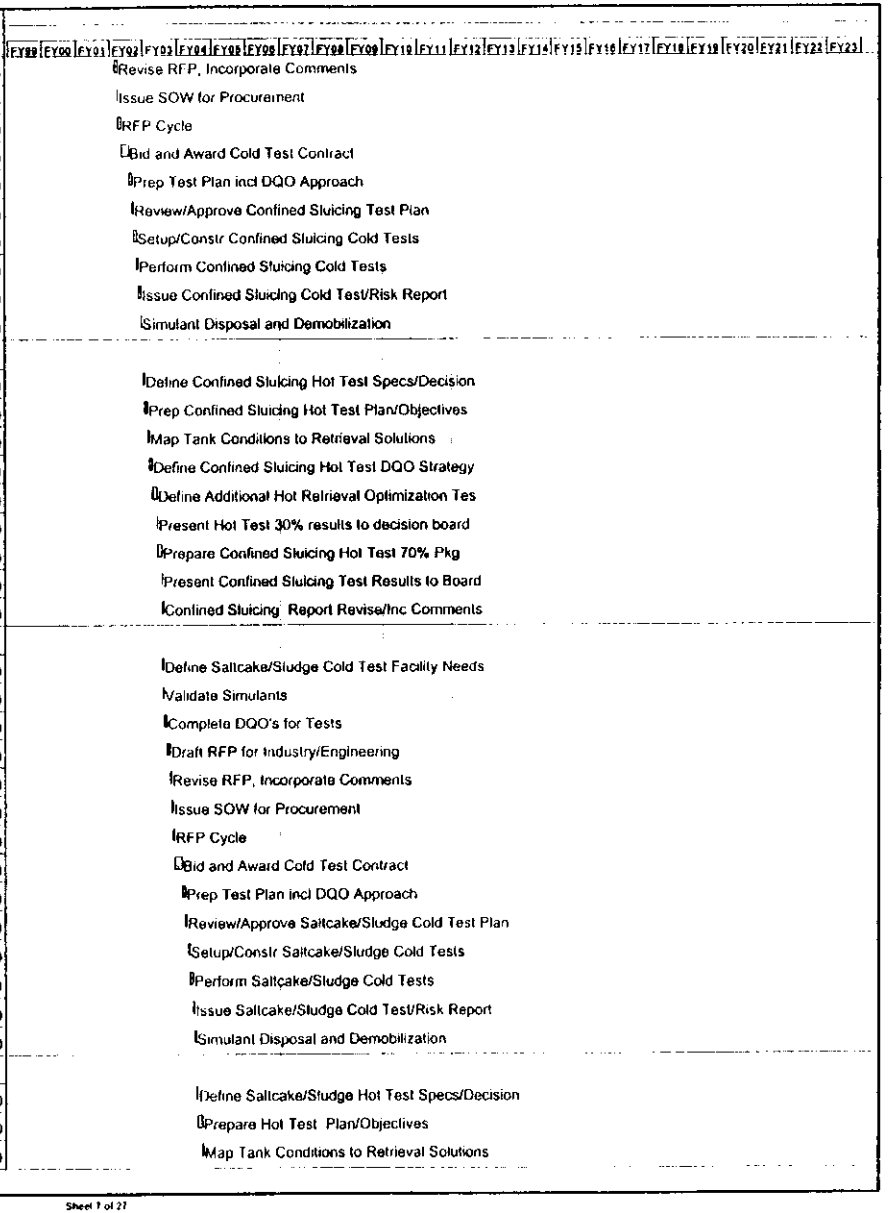
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28225E	Revise RFP, Incorporate Comments	04DEC01	27DEC01	7,320.00
28225F	Issue SOW for Procurement	28DEC01	04JAN02	2,440.00
28225G	RFP Cycle	07JAN02	25JAN02	19,520.00
28225H	Bid and Award Cold Test Contract	28JAN02	22APR02	9,760.00
28225J	Prep Test Plan incl DQO Approach	23APR02	28MAY02	93,940.00
28225K	Review/Approve Confined Sluicing Test Plan	29MAY02	11JUN02	139,080.00
28225L	Setup/Constr Confined Sluicing Cold Tests	12JUN02	11JUL02	347,700.00
28225M	Perform Confined Sluicing Cold Tests	12JUL02	01AUG02	513,620.00
28225N	Issue Confined Sluicing Cold Test/Risk Report	02AUG02	29AUG02	70,760.00
28225P	Simulant Disposal and Demobilization	30AUG02	13SEP02	65,880.00
280.230	**Confined Sluice Hot Tst Spec/Deployment Decision**			
28230A	Define Confined Sluicing Hot Test	16SEP02	04OCT02	39,232.80
28230B	Prep Confined Sluicing Hot Test	07OCT02	15NOV02	78,465.60
28230C	Map Tank Conditions to Retrieval Solutions	18NOV02	03DEC02	26,155.20
28230D	Define Confined Sluicing Hot Test DQO	04DEC02	03JAN03	52,310.40
28230E	Define Additional Hot Retrieval Optimization Tes	06JAN03	14FEB03	78,465.60
28230F	Present Hot Test 30% results to decision board	18FEB03	24FEB03	13,077.60
28230G	Prepare Confined Sluicing Hot Test 70% Pkg	25FEB03	07APR03	65,388.00
28230H	Present Confined Sluicing Test Results to Board	08APR03	14APR03	13,077.60
28230J	Confined Sluicing Report Revise/Inc Comments	15APR03	05MAY03	39,232.80
280.235	**Saltcake/Sludge Cold Tests**			
28235A	Define Saltcake/Sludge Cold Test Facility	15APR03	28APR03	4,880.00
28235B	Validate Simulants	29APR03	05MAY03	2,440.00
28235C	Complete DQO's for Tests	06MAY03	03JUN03	9,760.00
28235D	Draft RFP for Industry/Engineering	04JUN03	01JUL03	9,760.00
28235E	Revise RFP, Incorporate Comments	02JUL03	24JUL03	7,320.00
28235F	Issue SOW for Procurement	25JUL03	31JUL03	2,440.00
28235G	RFP Cycle	01AUG03	21AUG03	19,520.00
28235H	Bid and Award Cold Test Contract	22AUG03	14NOV03	9,760.00
28235J	Prep Test Plan incl DQO Approach	17NOV03	23DEC03	93,940.00
28235K	Review/Approve Saltcake/Sludge Cold Test	24DEC03	09JAN04	139,080.00
28235L	Setup/Constr Saltcake/Sludge Cold Tests	12JAN04	06FEB04	347,700.00
28235M	Perform Saltcake/Sludge Cold Tests	09FEB04	01MAR04	513,620.00
28235N	Issue Saltcake/Sludge Cold Test/Risk Report	02MAR04	29MAR04	70,760.00
28235P	Simulant Disposal and Demobilization	30MAR04	12APR04	65,880.00
280.240	**Saltcake/Sludge Hot Tst Spec/Deployment Decision**			
28240A	Define Saltcake/Sludge Hot Test	13APR04	03MAY04	39,232.80
28240B	Prepare Hot Test Plan/Objectives	04MAY04	15JUN04	78,465.60
28240C	Map Tank Conditions to Retrieval Solutions	16JUN04	29JUN04	26,155.20



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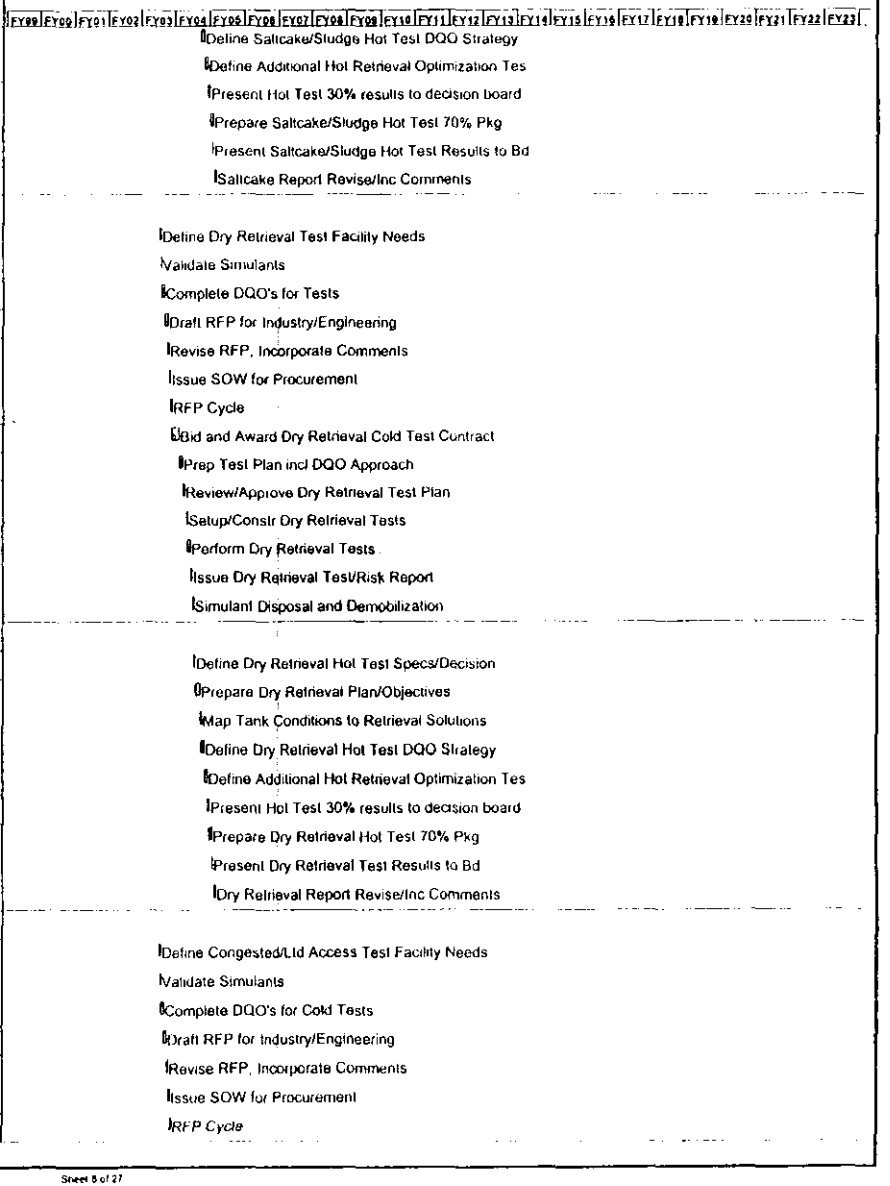
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28240D	Define Saltcake/Sludge Hot Test DQO Strategy	30JUN04	29JUL04	52,310.40
28240E	Define Additional Hot Retrieval Optimization Tes	30JUL04	10SEP04	78,465.60
28240F	Present Hot Test 30% results to decision board	13SEP04	17SEP04	13,077.60
28240G	Prepare Saltcake/Sludge Hot Test 70% Pkg	20SEP04	29OCT04	65,388.00
28240H	Present Saltcake/Sludge Hot Test Results to Bd	01NOV04	05NOV04	13,077.60
28240J	Saltcake Report Revise/Inc Comments	08NOV04	30NOV04	39,232.80
280.245 Dry Retrieval Cold Tests				
28245A	Define Dry Retrieval Test Facility Needs	15APR03	28APR03	4,880.00
28245B	Validate Simulants	29APR03	05MAY03	2,440.00
28245C	Complete DQO's for Tests	06MAY03	03JUN03	9,760.00
28245D	Draft RFP for Industry/Engineering	04JUN03	01JUL03	9,760.00
28245E	Revise RFP, Incorporate Comments	02JUL03	24JUL03	7,320.00
28245F	Issue SOW for Procurement	25JUL03	31JUL03	2,440.00
28245G	RFP Cycle	01AUG03	21AUG03	19,520.00
28245H	Bid and Award Dry Retrieval Cold Test Contract	22AUG03	14NOV03	9,760.00
28245J	Prep Test Plan incl DQO Approach	17NOV03	23DEC03	93,940.00
28245K	Review/Approve Dry Retrieval Test Plan	24DEC03	09JAN04	139,080.00
28245L	Setup/Constr Dry Retrieval Tests	12JAN04	06FEB04	347,700.00
28245M	Perform Dry Retrieval Tests	09FEB04	01MAR04	513,620.00
28245N	Issue Dry Retrieval Test/Risk Report	02MAR04	29MAR04	70,760.00
28245P	Simulant Disposal and Demobilization	30MAR04	12APR04	65,880.00
280.250 Dry Retrieval Hot Tst Spec/Deployment Decision				
28250A	Define Dry Retrieval Hot Test Specs/Decision	13APR04	03MAY04	39,232.80
28250B	Prepare Dry Retrieval Plan/Objectives	04MAY04	15JUN04	78,465.60
28250C	Map Tank Conditions to Retrieval Solutions	16JUN04	29JUN04	26,155.20
28250D	Define Dry Retrieval Hot Test DQO Strategy	30JUN04	29JUL04	52,310.40
28250E	Define Additional Hot Retrieval Optimization Tes	30JUL04	10SEP04	78,465.60
28250F	Present Hot Test 30% results to decision board	13SEP04	17SEP04	13,077.60
28250G	Prepare Dry Retrieval Hot Test 70% Pkg	20SEP04	29OCT04	65,388.00
28250H	Present Dry Retrieval Test Results to Bd	01NOV04	05NOV04	13,077.60
28250J	Dry Retrieval Report Revise/Inc Comments	08NOV04	30NOV04	39,232.80
280.255 Congested and Limited Access Cold Tests				
28255A	Define Congested/Ltd Access Test Facility	15APR03	28APR03	4,880.00
28255B	Validate Simulants	29APR03	05MAY03	2,440.00
28255C	Complete DQO's for Cold Tests	06MAY03	03JUN03	9,760.00
28255D	Draft RFP for Industry/Engineering	04JUN03	01JUL03	9,760.00
28255E	Revise RFP, Incorporate Comments	02JUL03	24JUL03	7,320.00
28255F	Issue SOW for Procurement	25JUL03	31JUL03	2,440.00
28255G	RFP Cycle	01AUG03	21AUG03	19,520.00



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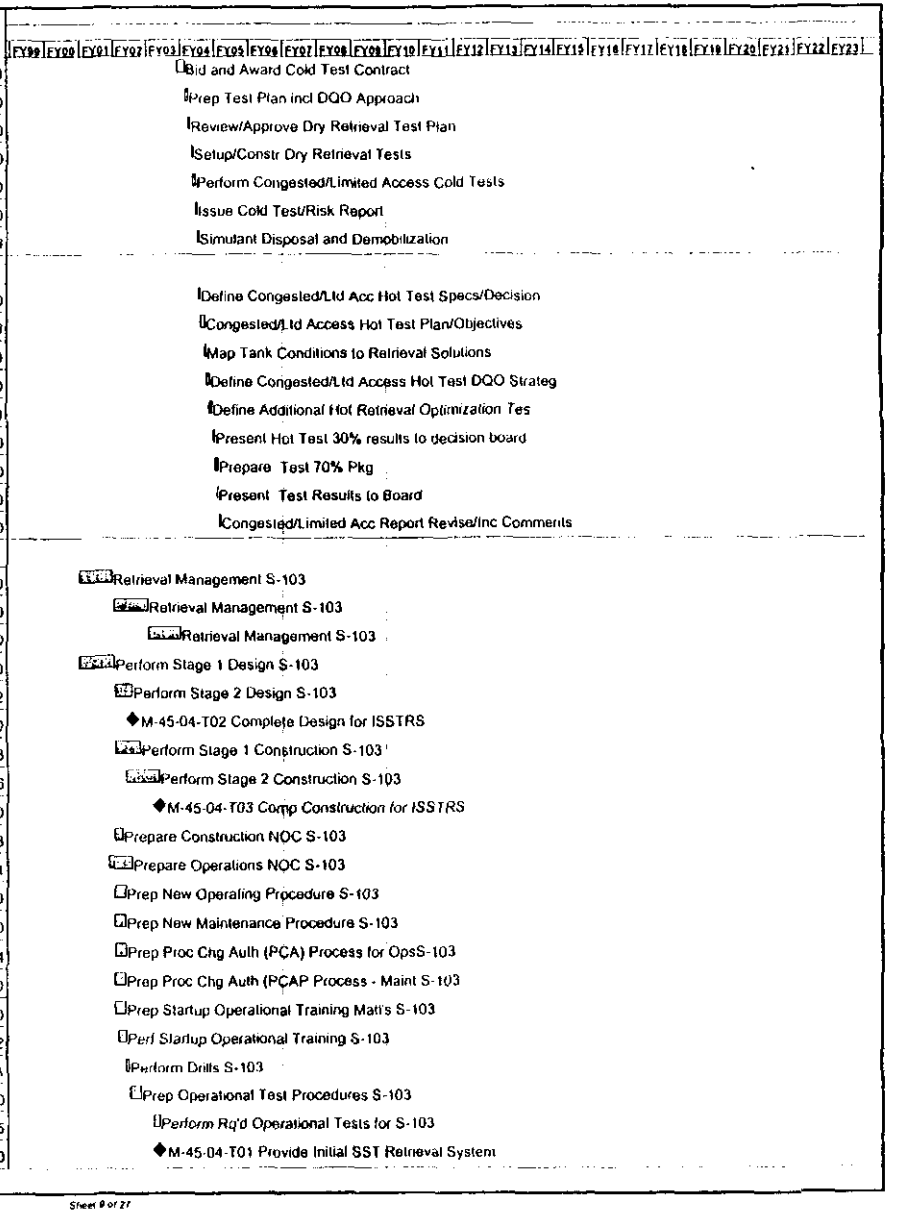
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28255H	Bid and Award Cold Test Contract	22AUG03	14NOV03	9,760.00
28255J	Prep Test Plan incl DQO Approach	17NOV03	23DEC03	93,940.00
28255K	Review/Approve Dry Retrieval Test Plan	24DEC03	09JAN04	139,080.00
28255L	Setup/Constr Dry Retrieval Tests	12JAN04	06FEB04	347,700.00
28255M	Perform Congested/Limited Access Cold Tests	09FEB04	01MAR04	513,620.00
28255N	Issue Cold Test/Risk Report	02MAR04	29MAR04	70,760.00
28255P	Simulant Disposal and Demobilization	30MAR04	12APR04	65,680.00
280.260 Congested/Lmtd Access Hot Tst Spec/Deploymt Dec				
28260A	Define Congested/Ltd Acc Hot Test	13APR04	03MAY04	39,232.80
28260B	Congested/Ltd Access Hot Test Plan/Objectives	04MAY04	15JUN04	78,465.60
28260C	Map Tank Conditions to Retrieval Solutions	16JUN04	29JUN04	26,155.20
28260D	Define Congested/Ltd Access Hot Test DQO	30JUN04	29JUL04	52,310.40
28260E	Define Additional Hot Retrieval Optimization Tes	30JUL04	10SEP04	78,465.60
28260F	Present Hot Test 30% results to decision board	13SEP04	17SEP04	13,077.60
28260G	Prepare Test 70% Pkg	20SEP04	29OCT04	65,388.00
28260H	Present Test Results to Board	01NOV04	05NOV04	13,077.60
28260J	Congested/Limited Acc Report Revise/Inc	08NOV04	30NOV04	39,232.80
280.305 Saltcake Dissolution Retrieval Demonstrations				
28305A1	Retrieval Management S-103	02OCT00	28SEP01	144,228.60
28305A2	Retrieval Management S-103	01OCT01	01OCT02	144,228.60
28305A3	Retrieval Management S-103	02OCT02	30SEP03	144,228.60
28305BA	Perform Stage 1 Design S-103	02OCT00*	19OCT01	391,620.00
28305BB	Perform Stage 2 Design S-103	22OCT01	24APR02	480,126.12
28305BB	M-45-04-T02 Complete Design for ISSTRS		24APR02	0.00
28305CA	Perform Stage 1 Construction S-103	22OCT01	12JUL02	1,628,479.53
28305CB	Perform Stage 2 Construction S-103	12FEB02	27JAN03	6,258,364.16
28305CB	M-45-04-T03 Comp Construction for ISSTRS		27JAN03	0.00
28305DA	Prepare Construction NOC S-103	22OCT01	22JAN02	15,453.38
28305DB	Prepare Operations NOC S-103	13AUG01	24APR02	31,931.71
28305FA	Prep New Operating Procedure S-103	22OCT01	25FEB02	138,165.90
28305FB	Prep New Maintenance Procedure S-103	22OCT01	25FEB02	137,250.30
28305FC	Prep Proc Chg Auth (PCA) Process for	22OCT01	25FEB02	110,278.64
28305FD	Prep Proc Chg Auth (PCAP Process - Maint	22OCT01	25FEB02	59,316.80
28305FE	Prep Startup Operational Training Mat'l's S-103	22OCT01	25FEB02	203,333.20
28305FF	Perf Startup Operational Training S-103	21NOV01	25FEB02	256,978.32
28305FG	Perform Drills S-103	26FEB02	26MAR02	64,649.61
28305FH	Prep Operational Test Procedures S-103	27MAR02	25JUL02	99,796.80
28305FJ	Perform Rq'd Operational Tests for S-103	22NOV02	27JAN03	221,730.15
28305FJ	M-45-04-T01 Provide Initial SST Retrieval		27JAN03	0.00



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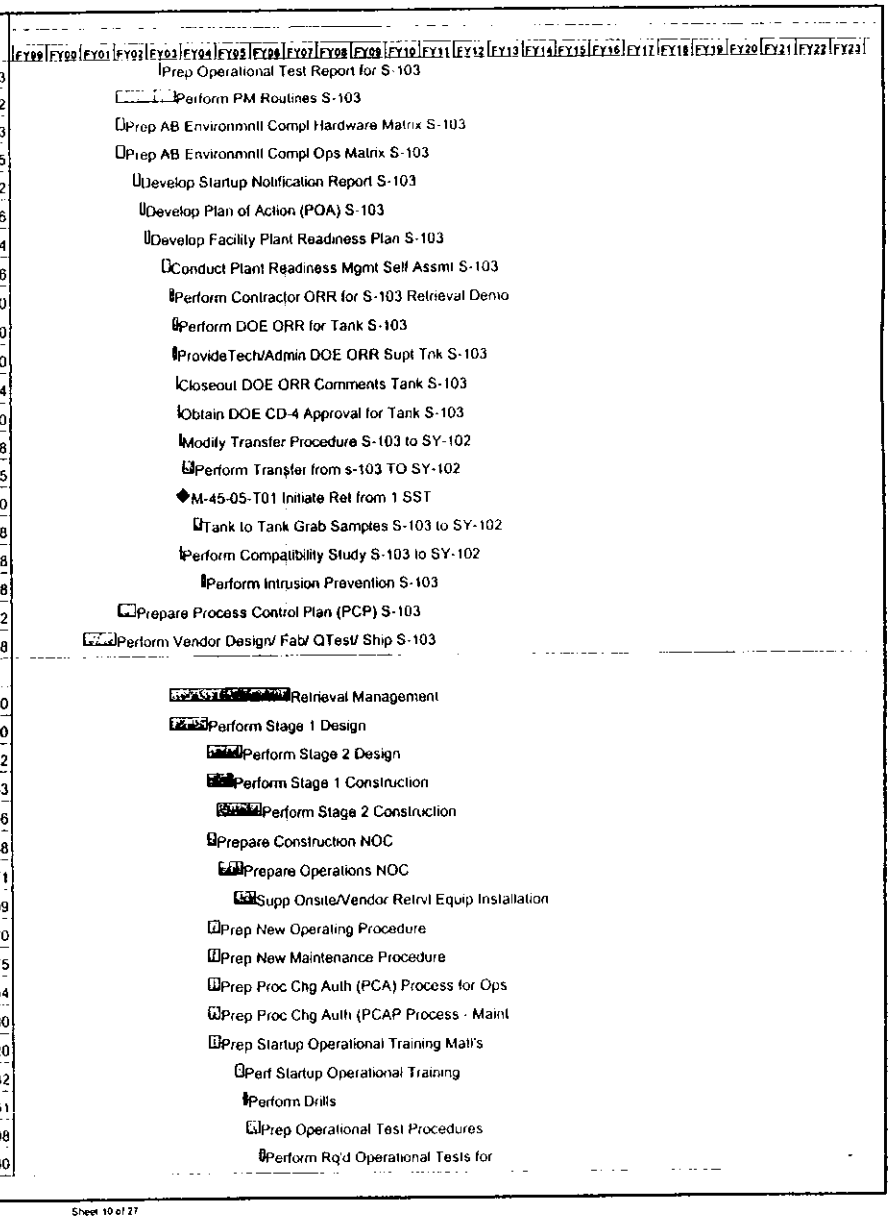
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28305FK	Prep Operational Test Report for S-103	28JAN03	26FEB03	26,371.13
28305FM	Perform PM Routines S-103	22OCT01	11JUL03	142,235.92
28305FN	Prep AB Environmntl Compl Hardware Matrix	22OCT01	23JAN02	71,981.93
28305FP	Prep AB Environmntl Compl Ops Matrix S-103	22OCT01	23JAN02	72,050.85
28305GA	Develop Startup Notification Report S-103	29APR02	01JUL02	23,740.52
28305GB	Develop Plan of Action (POA) S-103	02JUL02	28AUG02	9,233.76
28305GD	Develop Facility Plant Readiness Plan S-103	29AUG02	10OCT02	41,385.04
28305GE	Conduct Plant Readiness Mgmt Self Assmt	27FEB03	21MAY03	420,791.76
28305H	Perform Contractor ORR for S-103 Retrieval	22MAY03	19JUN03	253,340.80
28305JA	Perform DOE ORR for Tank S-103	20JUN03	28JUL03	0.00
28305JB	ProvideTech/Admin DOE ORR Supt Tnk S-103	20JUN03	14JUL03	81,188.20
28305JC	Closeout DOE ORR Comments Tank S-103	15JUL03	28JUL03	11,333.54
28305JD	Obtain DOE CD-4 Approval for Tank S-103	29JUL03	18AUG03	0.00
28305KA	Modify Transfer Procedure S-103 to SY-102	19AUG03	02SEP03	15,646.38
28305KB	Perform Transfer from s-103 TO SY-102	01OCT03	20JAN04	503,914.35
28305KB	M-45-05-T01 Initiate Ret from 1 SST	01OCT03		0.00
28305KC	Tank to Tank Grab Samples S-103 to SY-102	21JAN04	14APR04	223,232.68
28305KD	Perform Compatibility Study S-103 to SY-102	19AUG03	02SEP03	7,704.08
28305L	Perform Intrusion Prevention S-103	15APR04	12MAY04	96,457.88
28305P	Prepare Process Control Plan (PCP) S-103	22OCT01	26APR02	169,165.52
28305TA	Perform Vendor Design/ Fab/ QTest/ Ship	02OCT00*	27SEP01	385,695.68
280.315 Confined Sluice Retrieval Demonstrations				
28315A	Retrieval Management	06MAY03	25OCT06	432,685.80
28315BA	Perform Stage 1 Design	06MAY03	25MAY04	391,620.00
28315BB	Perform Stage 2 Design	26MAY04	09JUN05	480,126.12
28315CA	Perform Stage 1 Construction	26MAY04	14FEB05	1,628,479.53
28315CB	Perform Stage 2 Construction	14SEP04	23DEC05	6,258,364.16
28315DA	Prepare Construction NOC	26MAY04	23AUG04	15,453.38
28315DB	Prepare Operations NOC	29SEP04	09JUN05	31,931.71
28315E	Supp Onsite/Vendor Retrvl Equip Installation	15MAR05	14OCT05	1,190,502.09
28315FA	Prep New Operating Procedure	26MAY04	24SEP04	30,818.70
28315FB	Prep New Maintenance Procedure	26MAY04	24SEP04	343,125.75
28315FC	Prep Proc Chg Auth (PCA) Process for Ops	26MAY04	24SEP04	110,278.64
28315FD	Prep Proc Chg Auth (PCAP Process - Maint	26MAY04	24SEP04	59,316.80
28315FE	Prep Startup Operational Training Matl's	26MAY04	24SEP04	203,333.20
28315FF	Perf Startup Operational Training	15MAR05	09JUN05	258,978.32
28315FG	Perform Drills	10JUN05	12JUL05	64,649.61
28315FH	Prep Operational Test Procedures	13JUL05	08NOV05	151,192.08
28315FJ	Perform Rq'd Operational Tests for	09NOV05	12JAN06	412,783.80



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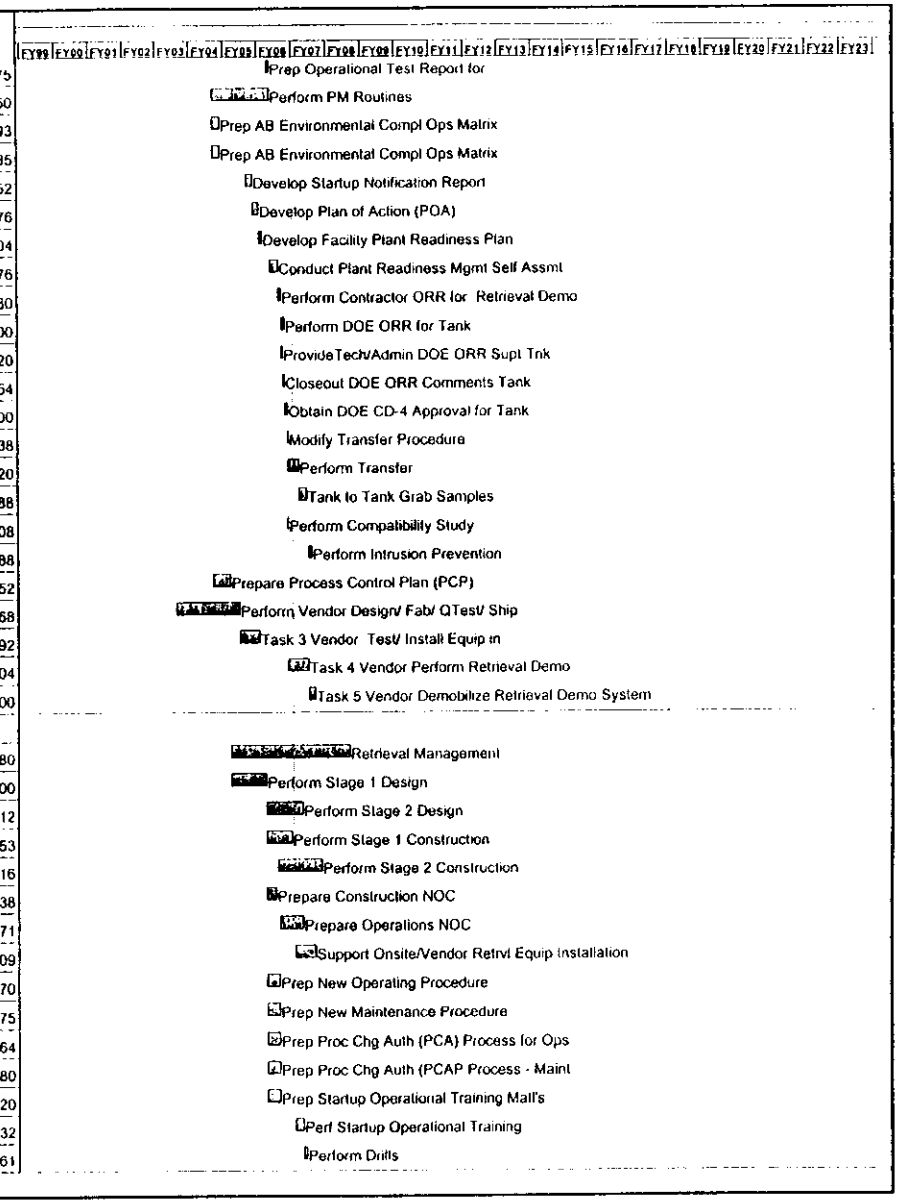
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28315FK	Prep Operational Test Report for	13JAN06	10FEB06	42,516.75
28315FM	Perform PM Routines	26MAY04	13FEB06	282,545.50
28315FN	Prep AB Environmental Compl Ops Matrix	26MAY04	24AUG04	71,981.93
28315FP	Prep AB Environmental Compl Ops Matrix	26MAY04	24AUG04	72,050.85
28315GA	Develop Startup Notification Report	10JUN05	15AUG05	23,740.52
28315GB	Develop Plan of Action (POA)	16AUG05	11OCT05	9,233.76
28315GD	Develop Facility Plant Readiness Plan	12OCT05	22NOV05	41,385.04
28315GE	Conduct Plant Readiness Mgmt Self Assmt	13FEB06	08MAY06	420,791.76
28315H	Perform Contractor ORR for Retrieval Demo	09MAY06	06JUN06	253,340.80
28315JA	Perform DOE ORR for Tank	07JUN06	13JUL06	0.00
28315JB	ProvideTech/Admin DOE ORR Supt Tnk	07JUN06	27JUN06	81,188.20
28315JC	Closeout DOE ORR Comments Tank	28JUN06	13JUL06	11,333.54
28315JD	Obtain DOE CD-4 Approval for Tank	14JUL06	03AUG06	0.00
28315KA	Modify Transfer Procedure	04AUG06	17AUG06	15,646.38
28315KB	Perform Transfer	18AUG06	05DEC06	1,929,232.20
28315KC	Tank to Tank Grab Samples	06DEC06	05MAR07	223,232.88
28315KD	Perform Compatibility Study	04AUG06	17AUG06	7,704.08
28315L	Perform Intrusion Prevention	13MAR07	09APR07	96,457.88
28315P	Prepare Process Control Plan (PCP)	26MAY04	29NOV04	169,165.52
28315TA	Perform Vendor Design/ Fab/ QTest/ Ship	06MAY03	14MAR05	9,080,973.68
28315TB	Task 3 Vendor Test/ Install Equip in	15MAR05	14OCT05	2,155,905.92
28315TC	Task 4 Vendor Perform Retrieval Demo	04AUG06	12MAR07	1,534,355.04
28315TD	Task 5 Vendor Demobilize Retrieval Demo	13MAR07	21MAY07	351,848.00
280.325	**Saltcake/Sludge Retrieval Demonstrations**			
28325A	Retrieval Management	01DEC04	22MAY08	432,685.80
28325BA	Perform Stage 1 Design	01DEC04	21DEC05	391,620.00
28325BB	Perform Stage 2 Design	22DEC05	09JAN07	480,126.12
28325CA	Perform Stage 1 Construction	22DEC05	11SEP06	1,628,479.53
28325CB	Perform Stage 2 Construction	12APR06	23JUL07	6,258,364.16
28325DA	Prepare Construction NOC	22DEC05	22MAR06	15,453.38
28325DB	Prepare Operations NOC	27APR06	09JAN07	31,931.71
28325E	Support Onsite/Vendor Retrvl Equip Installation	09OCT06	14MAY07	1,190,502.09
28325FA	Prep New Operating Procedure	22DEC05	24APR06	414,497.70
28325FB	Prep New Maintenance Procedure	22DEC05	24APR06	343,125.75
28325FC	Prep Proc Chg Auth (PCA) Process for Ops	22DEC05	24APR06	110,278.64
28325FD	Prep Proc Chg Auth (PCAP Process - Maint	22DEC05	24APR06	59,316.80
28325FE	Prep Startup Operational Training Mat'l's	22DEC05	24APR06	203,333.20
28325FF	Perf Startup Operational Training	09OCT06	09JAN07	258,978.32
28325FG	Perform Drills	10JAN07	07FEB07	64,649.61



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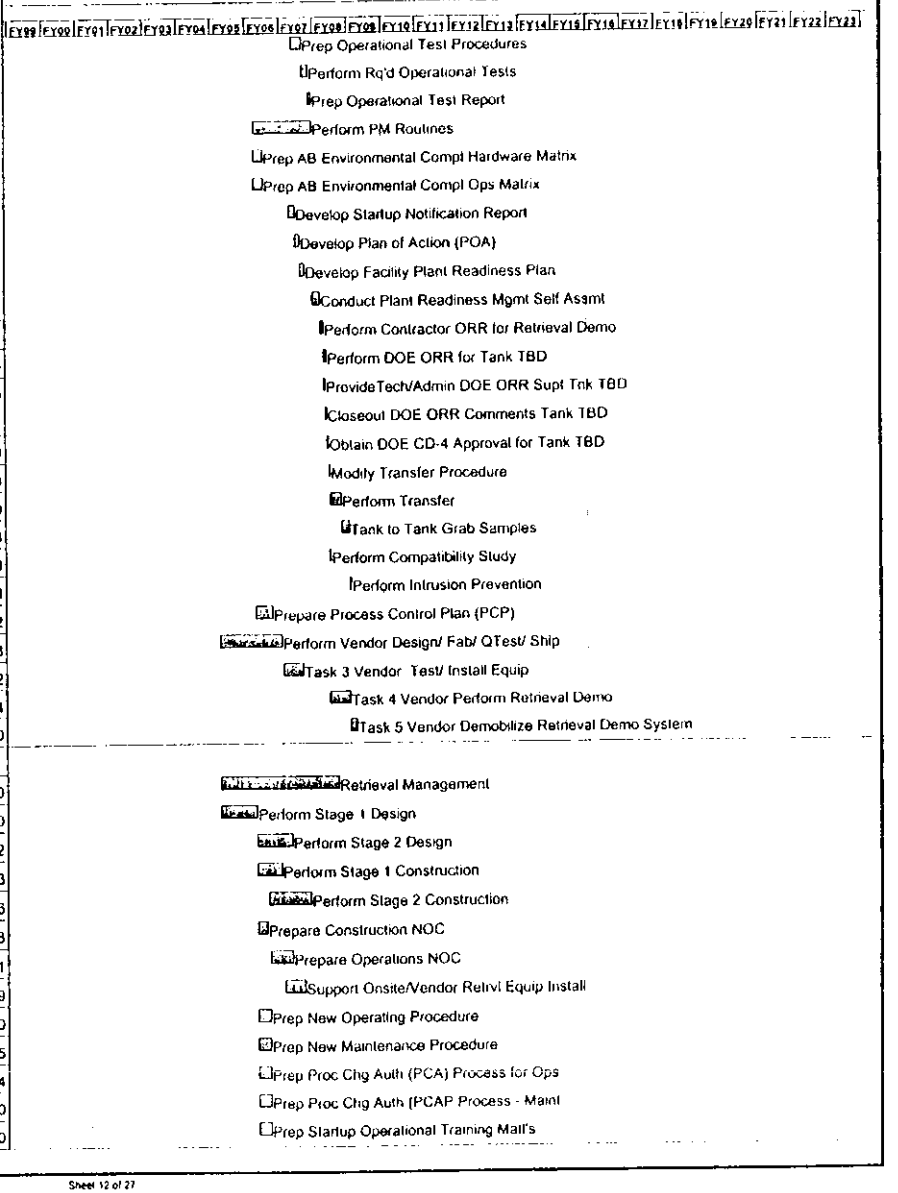
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28325FH	Prep Operational Test Procedures	08FEB07	07JUN07	151,192.08
28325FJ	Perform Rq'd Operational Tests	08JUN07	07AUG07	412,783.80
28325FK	Prep Operational Test Report	08AUG07	06SEP07	42,516.75
28325FM	Perform PM Routines	22DEC05	07SEP07	282,545.50
28325FN	Prep AB Environmental Compl Hardware Matrix	22DEC05	23MAR06	71,981.93
28325FP	Prep AB Environmental Compl Ops Matrix	22DEC05	23MAR06	72,050.85
28325GA	Develop Startup Notification Report	10JAN07	14MAR07	23,740.52
28325GB	Develop Plan of Action (POA)	15MAR07	09MAY07	9,233.76
28325GD	Develop Facility Plant Readiness Plan	10MAY07	21JUN07	41,385.04
28325GE	Conduct Plant Readiness Mgmt Self Assmt	07SEP07	03DEC07	0.00
28325H	Perform Contractor ORR for Retrieval Demo	04DEC07	04JAN08	253,340.80
28325JA	Perform DOE ORR for Tank TBD	07JAN08	08FEB08	0.00
28325JB	ProvideTech/Admin DOE ORR Supt Tnk TBD	07JAN08	25JAN08	81,188.20
28325JC	Closeout DOE ORR Comments Tank TBD	28JAN08	08FEB08	11,333.54
28325JD	Obtain DOE CD-4 Approval for Tank TBD	11FEB08	03MAR08	0.00
28325KA	Modify Transfer Procedure	04MAR08	17MAR08	15,646.38
28325KB	Perform Transfer	18MAR08	01JUL08	1,929,232.20
28325KC	Tank to Tank Grab Samples	02JUL08	26SEP08	223,232.88
28325KD	Perform Compatibility Study	04MAR08	17MAR08	7,704.08
28325L	Perform Intrusion Prevention	29SEP08	24OCT08	96,457.88
28325P	Prepare Process Control Plan (PCP)	22DEC05	26JUN06	169,165.52
28325TA	Perform Vendor Design/ Fab/ QTest/ Ship	01DEC04	06OCT06	9,080,973.68
28325TB	Task 3 Vendor Test/ Install Equip	09OCT06	14MAY07	2,155,905.92
28325TC	Task 4 Vendor Perform Retrieval Demo	04MAR08	26SEP08	1,534,355.04
28325TD	Task 5 Vendor Demobilize Retrieval Demo	29SEP08	09DEC08	351,848.00
280.335 Dry Retrieval Demonstrations				
28335A	Retrieval Management	01DEC04	22MAY08	432,685.80
28335BA	Perform Stage 1 Design	01DEC04	21DEC05	391,620.00
28335BB	Perform Stage 2 Design	22DEC05	09JAN07	480,126.12
28335CA	Perform Stage 1 Construction	22DEC05	11SEP06	1,628,479.53
28335CB	Perform Stage 2 Construction	12APR06	23JUL07	6,258,364.16
28335DA	Prepare Construction NOC	22DEC05	22MAR06	15,453.38
28335DB	Prepare Operations NOC	27APR06	09JAN07	31,931.71
28335E	Support Onsite/Vendor Retrvl Equip Install	09OCT06	14MAY07	1,190,502.09
28335FA	Prep New Operating Procedure	22DEC05	24APR06	414,497.70
28335FB	Prep New Maintenance Procedure	22DEC05	24APR06	343,125.75
28335FC	Prep Proc Chg Auth (PCA) Process for Ops	22DEC05	24APR06	110,278.64
28335FD	Prep Proc Chg Auth (PCAP Process - Maint	22DEC05	24APR06	59,316.80
28335FE	Prep Startup Operational Training Matl's	22DEC05	24APR06	203,333.20



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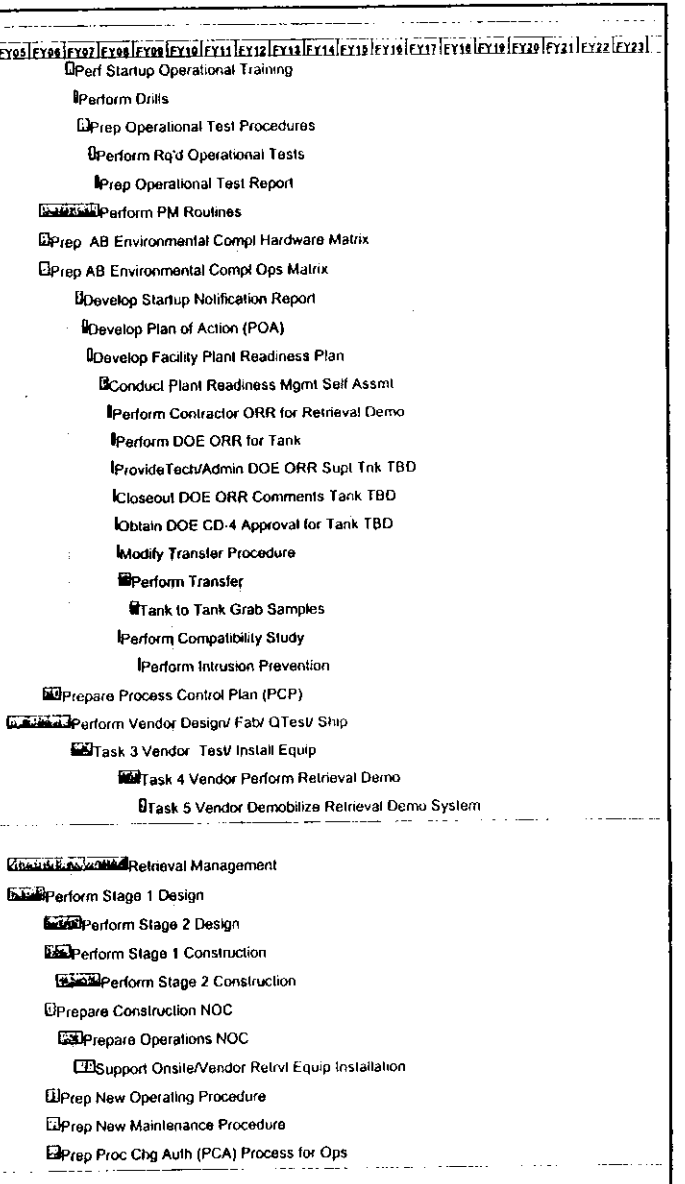
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28335FF	Perf Startup Operational Training	09OCT06	09JAN07	258,978.32
28335FG	Perform Drills	10JAN07	07FEB07	64,649.61
28335FH	Prep Operational Test Procedures	08FEB07	07JUN07	151,192.08
28335FJ	Perform Rq'd Operational Tests	08JUN07	07AUG07	412,783.80
28335FK	Prep Operational Test Report	08AUG07	06SEP07	42,516.75
28335FM	Perform PM Routines	22DEC05	07SEP07	282,545.50
28335FN	Prep AB Environmental Compl Hardware	22DEC05	23MAR06	71,981.93
28335FP	Prep AB Environmental Compl Ops Matrix	22DEC05	23MAR06	72,050.85
28335GA	Develop Startup Notification Report	10JAN07	14MAR07	23,740.52
28335GB	Develop Plan of Action (POA)	15MAR07	09MAY07	9,233.76
28335GD	Develop Facility Plant Readiness Plan	10MAY07	21JUN07	41,385.04
28335GE	Conduct Plant Readiness Mgmt Self Assmt	07SEP07	03DEC07	691,884.64
28335H	Perform Contractor ORR for Retrieval Demo	04DEC07	04JAN08	253,340.80
28335JA	Perform DOE ORR for Tank	07JAN08	08FEB08	0.00
28335JB	ProvideTech/Admin DOE ORR Supt Tnk TBD	07JAN08	25JAN08	81,188.20
28335JC	Closeout DOE ORR Comments Tank TBD	28JAN08	08FEB08	11,333.54
28335JD	Obtain DOE CD-4 Approval for Tank TBD	11FEB08	03MAR08	0.00
28335KA	Modify Transfer Procedure	04MAR08	17MAR08	15,646.38
28335KB	Perform Transfer	18MAR08	01JUL08	1,929,232.20
28335KC	Tank to Tank Grab Samples	02JUL08	26SEP08	223,232.88
28335KD	Perform Compatibility Study	04MAR08	17MAR08	7,704.08
28335L	Perform Intrusion Prevention	29SEP08	24OCT08	96,457.88
28335P	Prepare Process Control Plan (PCP)	22DEC05	26JUN06	169,165.52
28335TA	Perform Vendor Design/ Fab/ QTest/ Ship	01DEC04	06OCT06	9,934,973.68
28335TB	Task 3 Vendor Test/ Install Equip	09OCT06	14MAY07	2,155,905.92
28335TC	Task 4 Vendor Perform Retrieval Demo	04MAR08	26SEP08	1,534,355.04
28335TD	Task 5 Vendor Demobilize Retrieval Demo	29SEP08	09DEC08	351,848.00
280.345	**Congested/Limited Access Retrieval Demonstration**			
28345A	Retrieval Management	01DEC04	22MAY08	432,685.80
28345BA	Perform Stage 1 Design	01DEC04	21DEC05	391,620.00
28345BB	Perform Stage 2 Design	22DEC05	09JAN07	480,126.12
28345CA	Perform Stage 1 Construction	22DEC05	11SEP06	1,628,479.53
28345CB	Perform Stage 2 Construction	12APR06	23JUL07	6,258,364.16
28345DA	Prepare Construction NOC	22DEC05	22MAR06	15,453.38
28345DB	Prepare Operations NOC	27APR06	09JAN07	31,931.71
28345E	Support Onsite/Vendor Retrvl Equip Installation	09OCT06	14MAY07	1,190,502.09
28345FA	Prep New Operating Procedure	22DEC05	24APR06	414,497.70
28345FB	Prep New Maintenance Procedure	22DEC05	24APR06	343,125.75
28345FC	Prep Proc Chg Auth (PCA) Process for Ops	22DEC05	24APR06	110,278.64



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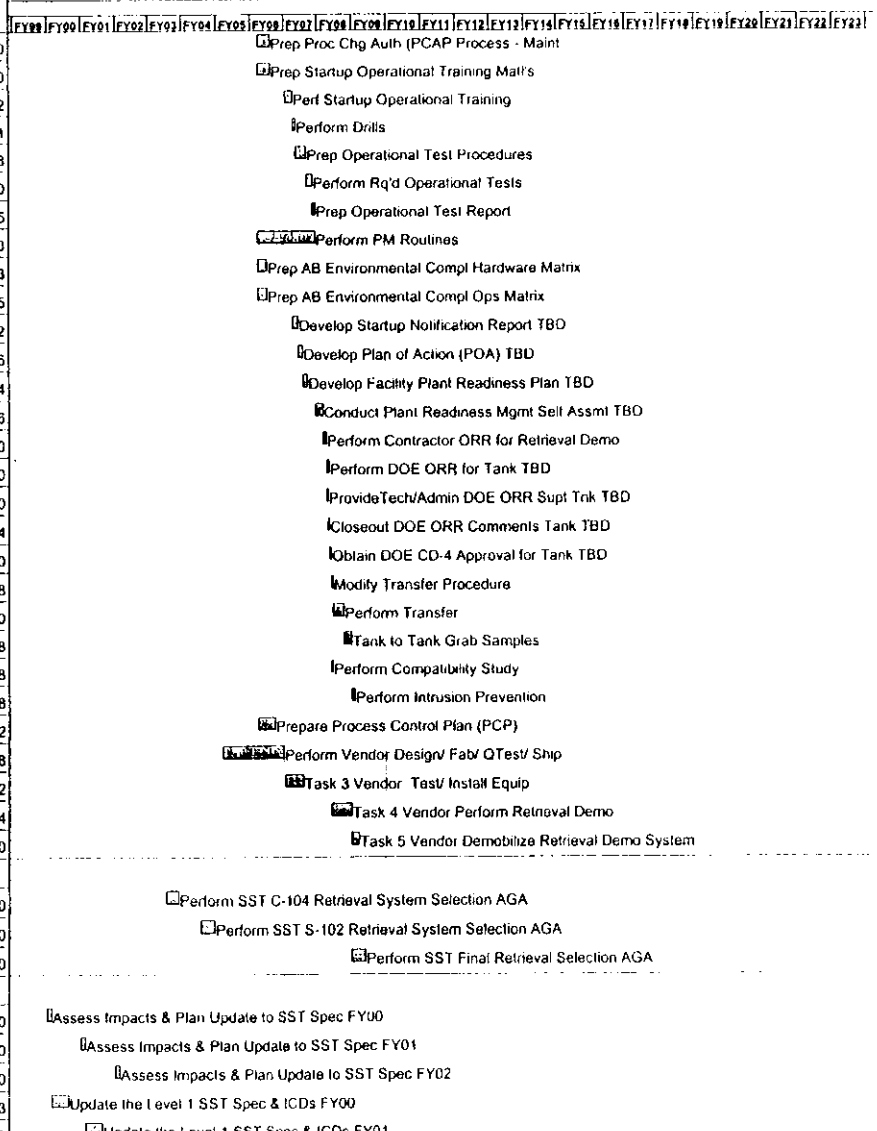
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
28345FD	Prep Proc Chg Auth (PCAP Process - Maint	22DEC05	24APR06	59,316.80
28345FE	Prep Startup Operational Training Matl's	22DEC05	24APR06	203,333.20
28345FF	Perf Startup Operational Training	09OCT06	09JAN07	258,978.32
28345FG	Perform Drills	10JAN07	07FEB07	64,849.61
28345FH	Prep Operational Test Procedures	08FEB07	07JUN07	151,192.08
28345FJ	Perform Rq'd Operational Tests	08JUN07	07AUG07	412,783.80
28345FK	Prep Operational Test Report	08AUG07	06SEP07	42,516.75
28345FM	Perform PM Routines	22DEC05	07SEP07	282,545.50
28345FN	Prep AB Environmental Compl Hardware Matrix	22DEC05	23MAR06	71,981.93
28345FP	Prep AB Environmental Compl Ops Matrix	22DEC05	23MAR06	72,050.85
28345GA	Develop Startup Notification Report TBD	10JAN07	14MAR07	23,740.52
28345GB	Develop Plan of Action (POA) TBD	15MAR07	09MAY07	9,233.76
28345GD	Develop Facility Plant Readiness Plan TBD	10MAY07	21JUN07	41,385.04
28345GE	Conduct Plant Readiness Mgmt Self Assmt	07SEP07	03DEC07	420,791.76
28345H	Perform Contractor ORR for Retrieval Demo	04DEC07	04JAN08	253,340.80
28345JA	Perform DOE ORR for Tank TBD	07JAN08	08FEB08	0.00
28345JB	ProvideTech/Admin DOE ORR Supt Tnk TBD	07JAN08	25JAN08	81,188.20
28345JC	Closeout DOE ORR Comments Tank TBD	28JAN08	08FEB08	11,333.54
28345JD	Obtain DOE CD-4 Approval for Tank TBD	11FEB08	03MAR08	0.00
28345KA	Modify Transfer Procedure	04MAR08	17MAR08	15,646.38
28345KB	Perform Transfer	18MAR08	01JUL08	1,929,232.20
28345KC	Tank to Tank Grab Samples	02JUL08	26SEP08	223,232.88
28345KD	Perform Compatibility Study	04MAR08	17MAR08	7,704.08
28345L	Perform Intrusion Prevention	06OCT08	31OCT08	96,457.88
28345P	Prepare Process Control Plan (PCP)	22DEC05	26JUN06	169,165.52
28345TA	Perform Vendor Design/ Fab/ QTest/ Ship	01DEC04	06OCT06	9,934,973.68
28345TB	Task 3 Vendor Test/ Install Equip	09OCT06	07MAY07	2,155,905.92
28345TC	Task 4 Vendor Perform Retrieval Demo	04MAR08	03OCT08	1,534,355.04
28345TD	Task 5 Vendor Demobilize Retrieval Demo	06OCT08	16DEC08	351,848.00
290.005	**Mixing and Retrieval System Selection AGA**			
29005A	Perform SST C-104 Retrieval System Selection	18APR03*	20AUG03	156,931.20
29005B	Perform SST S-102 Retrieval System Selection	15APR04	07SEP04	156,931.20
29005C	Perform SST Final Retrieval Selection AGA	29SEP08	23FEB09	326,940.00
290.007	**Update SST Level 1 Specification**			
29007A1	Assess Impacts & Plan Update to SST Spec	01OCT99*	29NOV99	71,725.20
29007A2	Assess Impacts & Plan Update to SST Spec	02OCT00*	28NOV00	71,725.20
29007A3	Assess Impacts & Plan Update to SST Spec	01OCT01*	27NOV01	71,725.20
29007C1	Update the Level 1 SST Spec & ICDs FY00	30NOV99	30MAY00	512,600.73
29007C2	Update the Level 1 SST Spec & ICDs FY01	29NOV00	30MAY01	512,600.73



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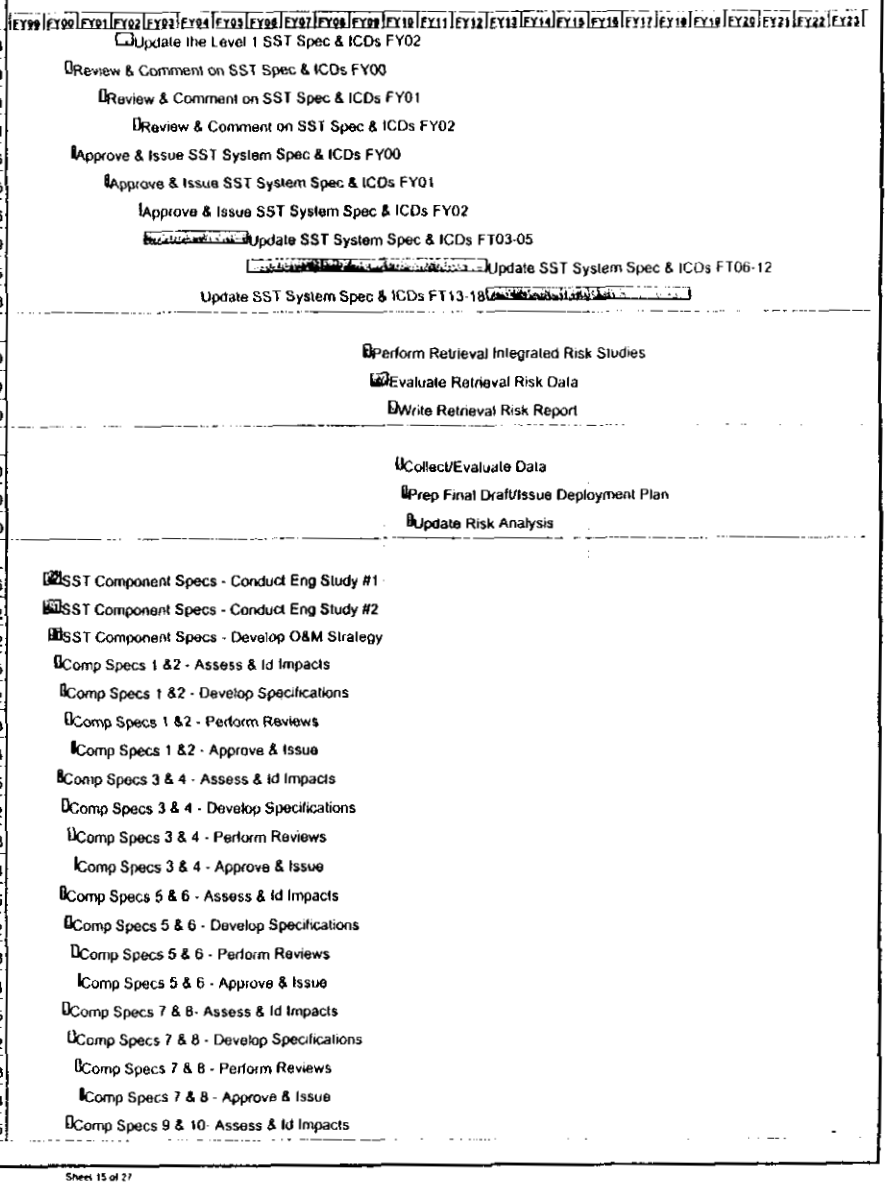
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29007C3	Update the Level 1 SST Spec & ICDs FY02	28NOV01	29MAY02	512,600.73
29007D1	Review & Comment on SST Spec & ICDs FY00	31MAY00	31JUL00	95,712.04
29007D2	Review & Comment on SST Spec & ICDs FY01	31MAY01	30JUL01	95,712.04
29007D3	Review & Comment on SST Spec & ICDs FY02	30MAY02	30JUL02	95,712.04
29007E1	Approve & Issue SST System Spec & ICDs	01AUG00	28AUG00	73,011.56
29007E2	Approve & Issue SST System Spec & ICDs	31JUL01	27AUG01	73,011.56
29007E3	Approve & Issue SST System Spec & ICDs	31JUL02	27AUG02	73,011.56
29007F	Update SST System Spec & ICDs FT03-05	01OCT02*	30SEP05	2,255,641.09
29007G	Update SST System Spec & ICDs FT06-12	03OCT05	28SEP12	5,275,460.55
29007H	Update SST System Spec & ICDs FT13-18	01OCT12	28SEP18	4,511,196.78
290.010 Retrieval Integrated Risk Studies				
29010AA	Perform Retrieval Integrated Risk Studies	24FEB09	18MAY09	183,000.00
29010AB	Evaluate Retrieval Risk Data	19MAY09	13NOV09	366,000.00
29010AC	Write Retrieval Risk Report	16NOV09	12FEB10	183,000.00
290.015 Update Prog Plan/Deployment Plan/Risk Analysis				
29015AA	Collect/Evaluate Data	16FEB10	12APR10	145,687.50
29015AC	Prep Final Draft/Issue Deployment Plan	13APR10	08JUN10	210,870.80
29015AD	Update Risk Analysis	09JUN10	05AUG10	85,281.80
290.025 Develop and Issue the SST Component Specs				
29025A	SST Component Specs - Conduct Eng Study #1	01OCT99	31MAR00	83,332.26
29025B	SST Component Specs - Conduct Eng Study #2	01OCT99*	31MAR00	83,249.32
29025C	SST Component Specs - Develop O&M	01DEC99*	31MAR00	83,249.32
29025D1	Comp Specs 1 &2 - Assess & Id Impacts	02FEB00*	31MAR00	16,592.95
29025D2	Comp Specs 1 &2 - Develop Specifications	03APR00	31MAY00	246,363.52
29025D3	Comp Specs 1 &2 - Perform Reviews	01JUN00	01AUG00	192,715.78
29025D4	Comp Specs 1 &2 - Approve & Issue	02AUG00	30AUG00	22,592.44
29025E1	Comp Specs 3 & 4 - Assess & Id Impacts	01MAR00*	27APR00	16,592.95
29025E2	Comp Specs 3 & 4 - Develop Specifications	28APR00	27JUN00	246,363.52
29025E3	Comp Specs 3 & 4 - Perform Reviews	28JUN00*	28AUG00	192,715.78
29025E4	Comp Specs 3 & 4 - Approve & Issue	29AUG00*	27SEP00	22,592.44
29025F1	Comp Specs 5 & 6 - Assess & Id Impacts	03APR00*	31MAY00	16,592.95
29025F2	Comp Specs 5 & 6 - Develop Specifications	01JUN00	01AUG00	246,363.52
29025F3	Comp Specs 5 & 6 - Perform Reviews	02AUG00*	29SEP00	192,715.78
29025F4	Comp Specs 5 & 6 - Approve & Issue	02OCT00*	30OCT00	22,592.44
29025G1	Comp Specs 7 & 8- Assess & Id Impacts	01MAY00*	28JUN00	16,592.95
29025G2	Comp Specs 7 & 8 - Develop Specifications	29JUN00	29AUG00	246,363.52
29025G3	Comp Specs 7 & 8 - Perform Reviews	30AUG00	27OCT00	192,715.78
29025G4	Comp Specs 7 & 8 - Approve & Issue	30OCT00	29NOV00	22,592.44
29025H1	Comp Specs 9 & 10- Assess & Id Impacts	01JUN00*	01AUG00	16,592.95



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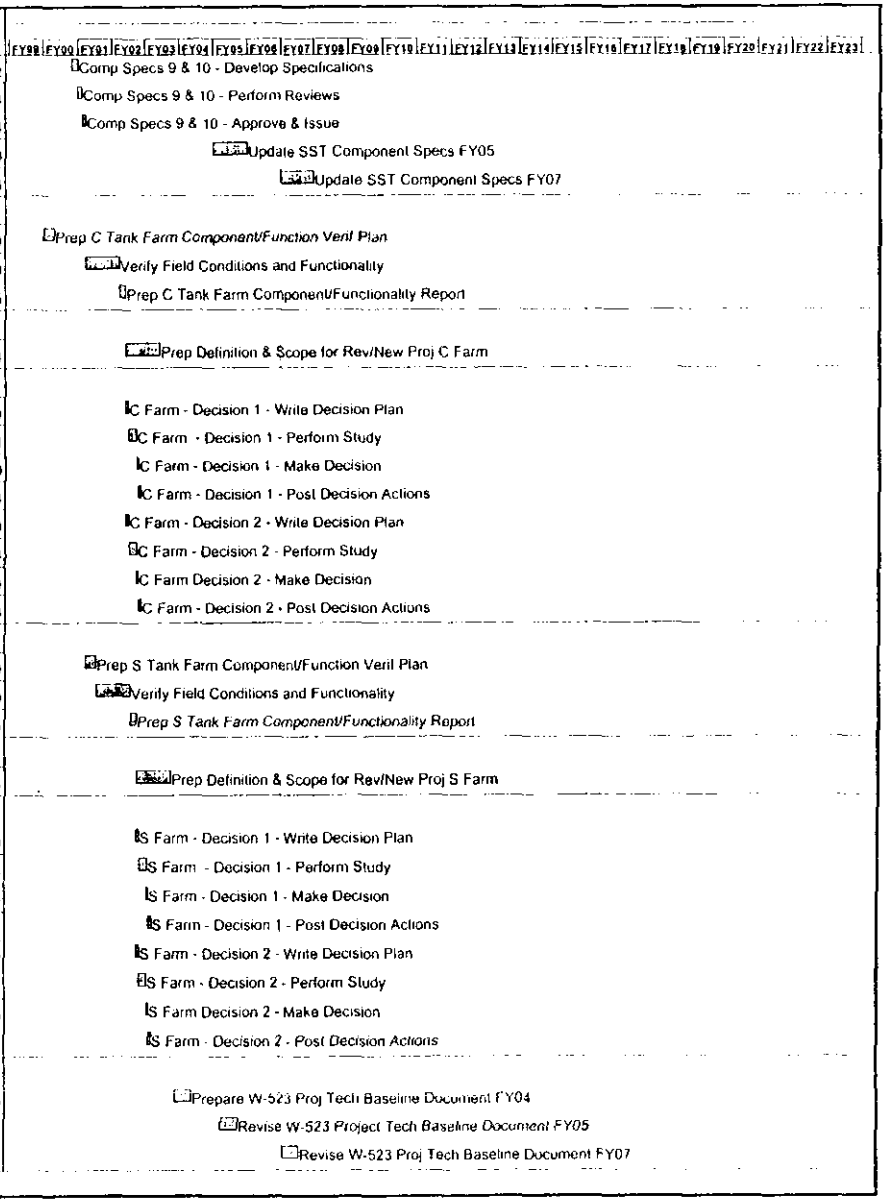
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29025H2	Comp Specs 9 & 10 - Develop Specifications	02AUG00	29SEP00	246,363.52
29025H3	Comp Specs 9 & 10 - Perform Reviews	02OCT00	30NOV00	192,715.78
29025H4	Comp Specs 9 & 10 - Approve & Issue	01DEC00	03JAN01	22,592.44
29025J	Update SST Component Specs FY05	01OCT04*	29SEP05	2,391,323.43
29025K	Update SST Component Specs FY07	02OCT06*	27SEP07	2,391,323.43
290.A27 Verify C Tank Farm Sys/Components Functionality				
29A27AA	Prep C Tank Farm Component/Function Verif	01OCT99	31JAN00	102,906.00
29A27AB	Verify Field Conditions and Functionality	04JAN01	04JAN02	359,500.00
29A27AC	Prep C Tank Farm Component/Functionality	07JAN02	05MAR02	40,530.45
290.A28 Perform Acquisition Stragety for C Tank Farm				
29A28A1	Prep Definition & Scope for Rev/New Proj C	06MAR02	04MAR03	55,106.64
290.A29 Perform C Tank Farm Trade Studies				
29A29A1	C Farm - Decision 1 - Write Decision Plan	06MAR02	03APR02	3,973.80
29A29A2	C Farm - Decision 1 - Perform Study	04APR02	02JUL02	216,540.14
29A29A3	C Farm - Decision 1 - Make Decision	03JUL02	18JUL02	25,751.80
29A29A4	C Farm - Decision 1 - Post Decision Actions	19JUL02	16AUG02	82,194.98
29A29B1	C Farm - Decision 2 - Write Decision Plan	06MAR02	03APR02	3,973.80
29A29B2	C Farm - Decision 2 - Perform Study	04APR02	02JUL02	216,540.14
29A29B3	C Farm Decision 2 - Make Decision	03JUL02	18JUL02	25,751.80
29A29B4	C Farm - Decision 2 - Post Decision Actions	19JUL02	16AUG02	82,194.98
290.A31 Verify S Tank Farm Sys/Components Functionality				
29A31AA	Prep S Tank Farm Component/Function Verif	04JAN01	30APR01	102,906.00
29A31AB	Verify Field Conditions and Functionality	01MAY01	01MAY02	359,500.00
29A31AC	Prep S Tank Farm Component/Functionality	02MAY02	28JUN02	40,530.45
290.A32 Perform Acquisition Stragety for S Tank Farm				
29A32A1	Prep Definition & Scope for Rev/New Proj S	01JUL02	27JUN03	55,106.64
290.A33 Perform S Tank Farm Trade Studies				
29A33A1	S Farm - Decision 1 - Write Decision Plan	01JUL02	31JUL02	3,973.80
29A33A2	S Farm - Decision 1 - Perform Study	01AUG02	29OCT02	216,540.14
29A33A3	S Farm - Decision 1 - Make Decision	30OCT02	12NOV02	25,751.80
29A33A4	S Farm - Decision 1 - Post Decision Actions	13NOV02	13DEC02	82,194.98
29A33B1	S Farm - Decision 2 - Write Decision Plan	01JUL02	31JUL02	3,973.80
29A33B2	S Farm - Decision 2 - Perform Study	01AUG02	29OCT02	216,540.14
29A33B3	S Farm Decision 2 - Make Decision	30OCT02	12NOV02	25,751.80
29A33B4	S Farm - Decision 2 - Post Decision Actions	13NOV02	13DEC02	82,194.98
290.B25 Prepare the W-523 Proj Tech Baseline Document				
29B25A	Prepare W-523 Proj Tech Baseline Document	21AUG03	18FEB04	130,003.80
29B25B	Revise W-523 Project Tech Baseline Document	04JAN05*	27JUN05	117,803.80
29B25C	Revise W-523 Proj Tech Baseline Document	01NOV06*	30APR07	105,603.80



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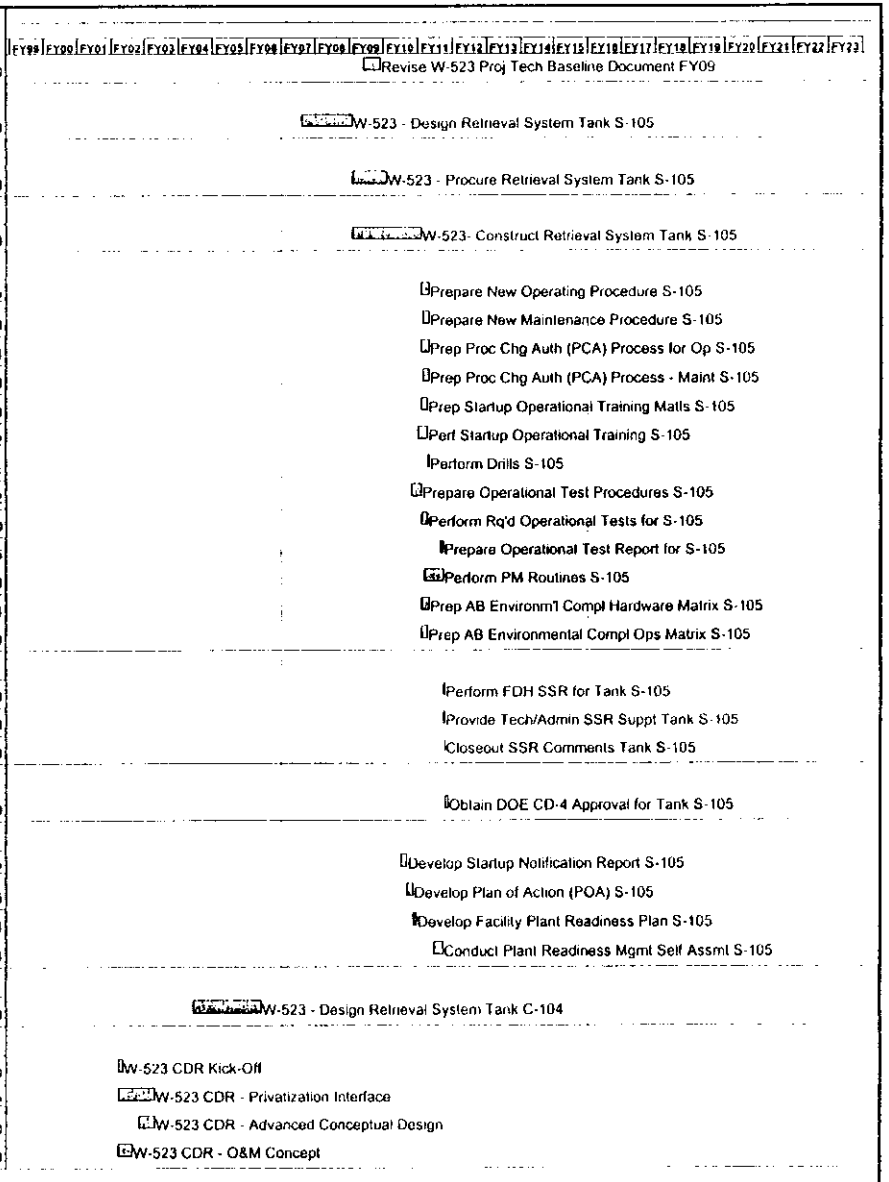
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29B25D	Revise W-523 Proj Tech Baseline Document	02MAR09*	24AUG09	105,603.80
290.I50 Design S-105 Sluicing Retrieval Sys Obtain CD-3				
29I50A	W-523 - Design Retrieval System Tank S-105	01MAY07*	31OCT08	8,495,778.80
290.I52 Proc Equip for the S-105 Sluicing Retrieval Sys				
29I52A	W-523 - Procure Retrieval System Tank S-105	03NOV08	30OCT09	4,315,502.00
290.I55 Construct the S-105 Sluicing Retrieval System				
29I55A	W-523- Construct Retrieval System Tank S-105	03NOV08	29OCT10	39,435,202.40
290.I60 Startup/Test the S-105 Sluicing Retrieval Sys				
29I60A1	Prepare New Operating Procedure S-105	15NOV10	28JAN11	248,698.62
29I60A2	Prepare New Maintenance Procedure S-105	29NOV10	28JAN11	178,425.39
29I60A3	Prep Proc Chg Auth (PCA) Process for Op	15NOV10	28JAN11	65,892.24
29I60A4	Prep Proc Chg Auth (PCA) Process - Maint	29NOV10	28JAN11	29,658.40
29I60B1	Prep Startup Operational Training Matls S-105	01NOV10	04JAN11	101,666.60
29I60B2	Perf Startup Operational Training S-105	04OCT10	04JAN11	258,978.32
29I60C	Perform Drills S-105	05JAN11	02FEB11	64,649.61
29I60D1	Prepare Operational Test Procedures S-105	03AUG10	29OCT10	112,576.02
29I60D2	Perform Rq'd Operational Tests for S-105	01NOV10	04JAN11	412,783.80
29I60D3	Prepare Operational Test Report for S-105	20MAY11	20JUN11	42,516.75
29I60E	Perform PM Routines S-105	15DEC10	20JUN11	216,231.69
29I60F1	Prep AB Environm'l Compl Hardware Matrix	01NOV10	28JAN11	57,585.54
29I60F2	Prep AB Environmental Compl Ops Matrix	01NOV10	14JAN11	62,225.69
290.I70 Perform Contractor SSR for S-105				
29I70A	Perform FDH SSR for Tank S-105	21JUN11	13JUL11	67,100.00
29I70B	Provide Tech/Admin SSR Suppt Tank S-105	21JUN11	06JUL11	108,833.40
29I70C	Closeout SSR Comments Tank S-105	07JUL11	13JUL11	37,584.00
290.I75 Provide CD-4 Approval for S-105				
29I75A	Obtain DOE CD-4 Approval for Tank S-105	14JUL11	10AUG11	0.00
290.I83 Perform MSA for the S-105 Sluicing Retrieval Sys				
29I83A	Develop Startup Notification Report S-105	09APR10*	11JUN10	21,129.72
29I83B	Develop Plan of Action (POA) S-105	14JUN10	10AUG10	11,429.76
29I83D	Develop Facility Plant Readiness Plan S-105	11AUG10	22SEP10	41,385.04
29I83E	Conduct Plant Readiness Mgmt Self Assmt	28MAR11	20JUN11	134,922.84
290.J40 Design the C-104 Sluicing System and Obtain CD-3				
29J40A	W-523 - Design Retrieval System Tank C-104	19FEB04	16FEB06	8,495,778.80
290.J43 Perf Conceptual Design W-523 Sluicing Rtrvl Sys				
29J43A	W-523 CDR Kick-Off	21DEC01*	24JAN02	61,400.00
29J43AA	W-523 CDR - Privatization Interface	21DEC01	23DEC02	144,845.12
29J43AB	W-523 CDR - Advanced Conceptual Design	24JUL02	23DEC02	3,957,800.00
29J43AC	W-523 CDR - O&M Concept	21DEC01	20MAY02	60,700.00



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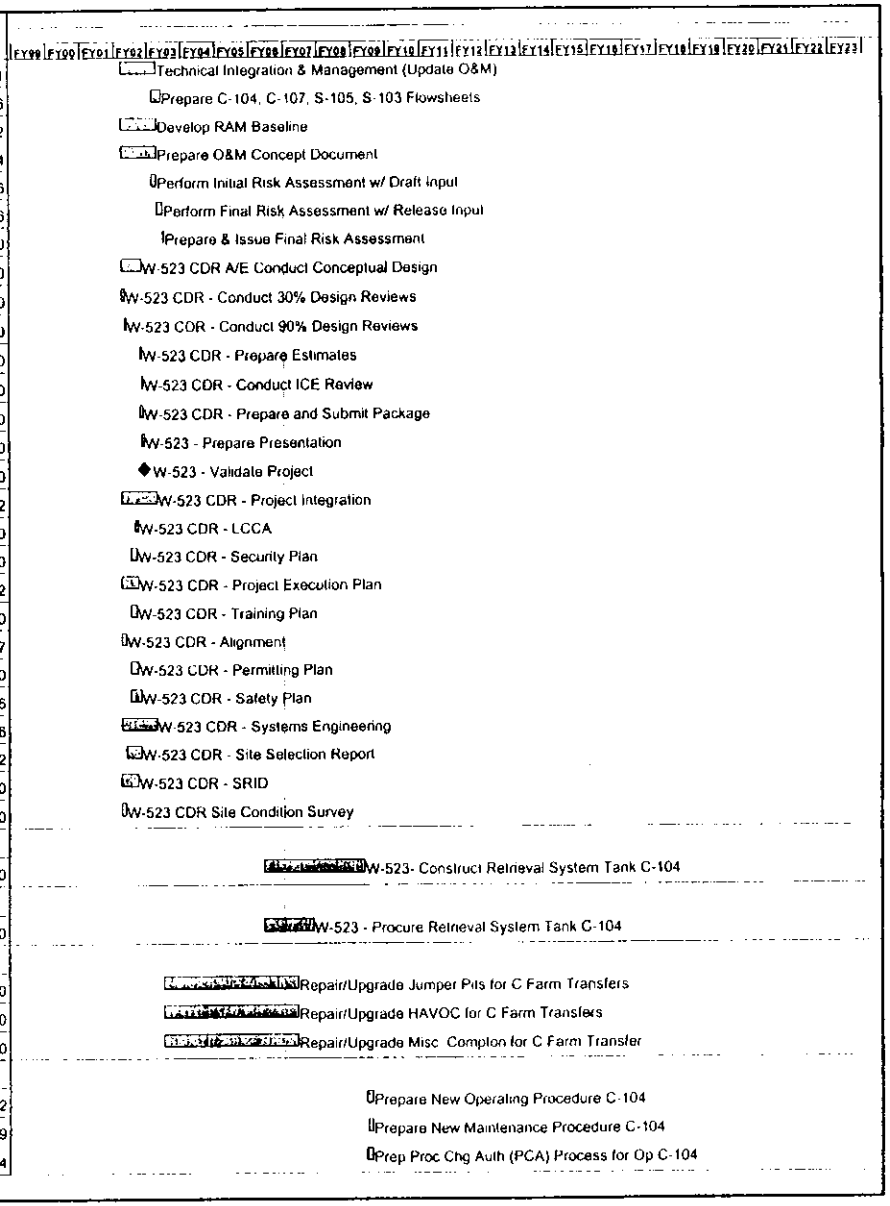
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29J43BA	Technical Integration & Management (Update	21DEC01	23DEC02	16,686.11
29J43BB	Prepare C-104, C-107, S-105, S-103	05NOV02	11FEB03	142,961.76
29J43BC	Develop RAM Baseline	21DEC01	23DEC02	588,189.72
29J43BD	Prepare O&M Concept Document	21DEC01	23DEC02	1,114,051.84
29J43BE	Perform Initial Risk Assessment w/ Draft Input	05NOV02	03JAN03	142,054.86
29J43BF	Perform Final Risk Assessment w/ Release	06JAN03	28FEB03	142,054.86
29J43BG	Prepare & Issue Final Risk Assessment	03MAR03	26MAR03	17,568.00
29J43C	W-523 CDR A/E Conduct Conceptual Design	21DEC01	23JUL02	151,700.00
29J43D	W-523 CDR - Conduct 30% Design Reviews	21DEC01*	09JAN02	48,600.00
29J43E	W-523 CDR - Conduct 90% Design Reviews	10JAN02*	06FEB02	72,800.00
29J43F	W-523 CDR - Prepare Estimates	24JUN02	23JUL02	200,000.00
29J43G	W-523 CDR - Conduct ICE Review	24JUL02*	07AUG02	50,000.00
29J43J	W-523 CDR - Prepare and Submit Package	24JUN02*	07AUG02	250,000.00
29J43K	W-523 - Prepare Presentation	24JUL02	22AUG02	100,000.00
29J43KM	W-523 - Validate Project		22AUG02*	0.00
29J43N	W-523 CDR - Project Integration	21DEC01	23DEC02	599,178.22
29J43P	W-523 CDR - LCCA	21MAY02	19JUN02	30,300.00
29J43Q	W-523 CDR - Security Plan	26MAR02	21MAY02	12,100.00
29J43R	W-523 CDR - Project Execution Plan	21DEC01	21JUN02	154,020.52
29J43S	W-523 CDR - Training Plan	26MAR02	21MAY02	60,700.00
29J43T	W-523 CDR - Alignment	21DEC01	24JAN02	48,799.97
29J43U	W-523 CDR - Permitting Plan	26MAR02	21JUN02	66,406.70
29J43V	W-523 CDR - Safety Plan	26MAR02	23JUL02	90,504.16
29J43W	W-523 CDR - Systems Engineering	21DEC01	23DEC02	1,208,600.76
29J43X	W-523 CDR - Site Selection Report	25JAN02	23JUL02	145,749.72
29J43Y	W-523 CDR - SRID	21DEC01	21JUN02	181,967.20
29J43Z	W-523 CDR Site Condition Survey	21DEC01	24JAN02	36,400.00
290.J50 Construct the C-104 Sluicing Retrieval System				
29J50A	W-523- Construct Retrieval System Tank C-104	17FEB06	17FEB09	39,435,202.40
290.J52 Procure Equip for C-104 Sluicing Retrieval Sys				
29J52A	W-523 - Procure Retrieval System Tank C-104	17FEB06	15AUG07	4,315,502.00
290.J54 Repair/Upgrade Existing C Tank Farm Systems				
29J54A	Repair/Upgrade Jumper Pits for C Farm	05MAR03	02MAR07	599,110.00
29J54B	Repair/Upgrade HAVOC for C Farm Transfers	05MAR03	02MAR07	3,249,628.40
29J54C	Repair/Upgrade Misc. Compton for C Farm	05MAR03	02MAR07	4,290,010.00
290.J60 Startup/Test the C-104 Sluicing Retrieval Sys				
29J60A1	Prepare New Operating Procedure C-104	04MAR09	12MAY09	248,698.62
29J60A2	Prepare New Maintenance Procedure C-104	16MAR09	12MAY09	178,425.39
29J60A3	Prep Proc Chg Auth (PCA) Process for Op	04MAR09	12MAY09	65,892.24



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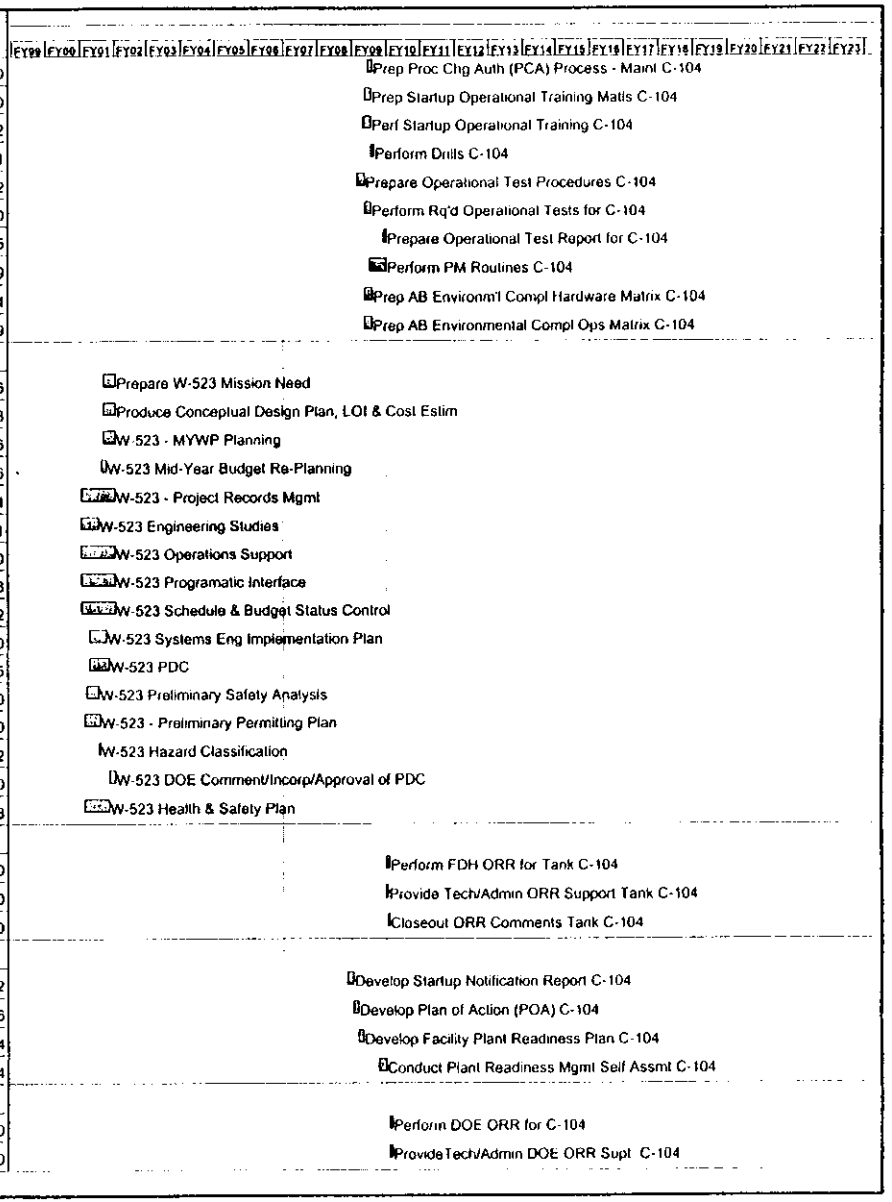
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29J60A4	Prep Proc Chg Auth (PCA) Process - Maint	16MAR09	12MAY09	29,658.40
29J60B1	Prep Startup Operational Training Matls C-104	18FEB09	16APR09	101,666.60
29J60B2	Perf Startup Operational Training C-104	20JAN09	16APR09	258,978.32
29J60C	Perform Drills C-104	17APR09	15MAY09	64,649.61
29J60D1	Prepare Operational Test Procedures C-104	13NOV08	17FEB09	112,576.02
29J60D2	Perform Rq'd Operational Tests for C-104	18FEB09	16APR09	412,783.80
29J60D3	Prepare Operational Test Report for C-104	03SEP09	02OCT09	42,516.75
29J60E	Perform PM Routines C-104	01APR09	02OCT09	216,231.69
29J60F1	Prep AB Environm'l Compl Hardware Matrix	18FEB09	12MAY09	57,585.54
29J60F2	Prep AB Environmental Compl Ops Matrix	18FEB09	28APR09	62,225.69
290.J61	**Prep Proj Def/Tech Basis/Proj Def Crit W-523**			
29J61A	Prepare W-523 Mission Need	19JUN01	16OCT01	75,155.66
29J61D	Produce Conceptual Design Plan, LOI & Cost	19JUN01	16OCT01	167,498.48
29J61E	W-523 - MYWP Planning	19JUN01	16OCT01	32,607.16
29J61F	W-523 Mid-Year Budget Re-Planning	21MAY01	19JUL01	32,607.16
29J61G	W-523 - Project Records Mgmt	18OCT00*	16OCT01	15,190.44
29J61H	W-523 Engineering Studies	18OCT00	16APR01	254,308.41
29J61J	W-523 Operations Support	18OCT00	16OCT01	95,577.20
29J61K	W-523 Programatic Interface	18OCT00	16OCT01	37,711.48
29J61L	W-523 Schedule & Budget Status Control	18OCT00	16OCT01	41,239.32
29J61M	W-523 Systems Eng Implementation Plan	19JAN01	19JUL01	30,085.60
29J61N	W-523 PDC	19JAN01	17AUG01	245,974.55
29J61P	W-523 Preliminary Safety Analysis	18DEC00	16APR01	18,440.00
29J61Q	W-523 - Preliminary Permitting Plan	20NOV00	17MAY01	15,472.20
29J61R	W-523 Hazard Classification	17APR01	15MAY01	17,983.02
29J61S	W-523 DOE Comment/Incorp/Approval of PDC	20AUG01	16OCT01	32,197.60
29J61T	W-523 Health & Safety Plan	20NOV00	17AUG01	14,680.98
290.J80	**Perform Contractor Independent ORR for C-104**			
29J80A	Perform FDH ORR for Tank C-104	05OCT09	05NOV09	244,008.00
29J80B	Provide Tech/Admin ORR Support Tank C-104	05OCT09	23OCT09	108,833.40
29J80C	Closeout ORR Comments Tank C-104	26OCT09	06NOV09	37,584.00
290.J83	**Perform MSA for the C-104 Sluicing Retrieval Sys**			
29J83A	Develop Startup Notification Report C-104	08AUG08*	10OCT08	21,129.72
29J83B	Develop Plan of Action (POA) C-104	13OCT08	09DEC08	11,429.76
29J83D	Develop Facility Plant Readiness Plan C-104	10DEC08	23JAN09	41,385.04
29J83E	Conduct Plant Readiness Mgmt Self Assmt	10JUL09	02OCT09	134,922.84
290.J90	**Perform DOE-RL ORR & Obtain CD-4 for C-104**			
29J90A	Perform DOE ORR for C-104	09NOV09	15DEC09	0.00
29J90B	ProvideTech/Admin DOE ORR Supt C-104	09NOV09	01DEC09	81,403.00



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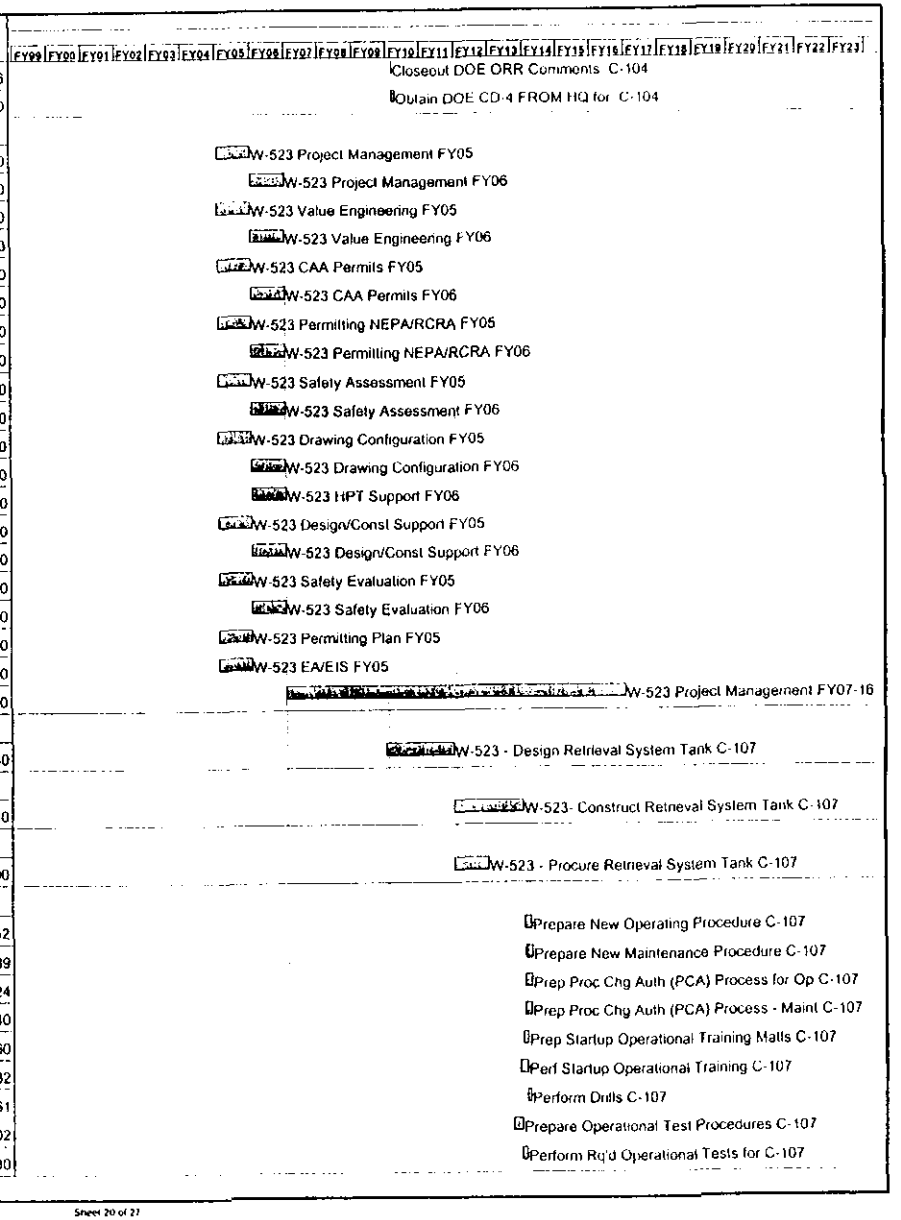
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29J90C	Closeout DOE ORR Comments C-104	02DEC09	15DEC09	7,666.16
29J90D	Obtain DOE CD-4 FROM HQ for C-104	16DEC09	08JAN10	0.00
290.J99 Project Management for W-523				
29J99A1	W-523 Project Management FY05	04OCT04*	03OCT05	1,535,000.00
29J99A2	W-523 Project Management FY06	04OCT05	02OCT06	1,046,800.00
29J99B1	W-523 Value Engineering FY05	04OCT04	03OCT05	116,400.00
29J99B2	W-523 Value Engineering FY06	04OCT05	02OCT06	116,400.00
29J99C1	W-523 CAA Permits FY05	04OCT04*	03OCT05	213,700.00
29J99C2	W-523 CAA Permits FY06	04OCT05	02OCT06	194,300.00
29J99D1	W-523 Permitting NEPA/RCRA FY05	04OCT04	03OCT05	135,600.00
29J99D2	W-523 Permitting NEPA/RCRA FY06	04OCT05	02OCT06	100,000.00
29J99E1	W-523 Safety Assessment FY05	04OCT04	03OCT05	312,400.00
29J99E2	W-523 Safety Assessment FY06	04OCT05	02OCT06	312,400.00
29J99F1	W-523 Drawing Configuration FY05	04OCT04	03OCT05	3,500.00
29J99F2	W-523 Drawing Configuration FY06	04OCT05	02OCT06	2,700.00
29J99G2	W-523 HPT Support FY06	04OCT05	02OCT06	788,500.00
29J99H1	W-523 Design/Const Support FY05	04OCT04	03OCT05	1,545,300.00
29J99H2	W-523 Design/Const Support FY06	04OCT05	02OCT06	1,154,300.00
29J99J1	W-523 Safety Evaluation FY05	04OCT04	03OCT05	200,000.00
29J99J2	W-523 Safety Evaluation FY06	04OCT05	02OCT06	28,000.00
29J99K1	W-523 Permitting Plan FY05	04OCT04	03OCT05	76,000.00
29J99L1	W-523 EA/EIS FY05	04OCT04	03OCT05	12,200.00
29J99M	W-523 Project Management FY07-16	03OCT06	03OCT16	34,310,000.00
290.Q40 Design C-107 Sluicing Retrieval Sys Obtain CD-3				
29Q40A	W-523 - Design Retrieval System Tank C-107	01SEP09*	31AUG11	8,495,778.80
290.Q50 Construct the C-107 Sluicing Retrieval System				
29Q50A	W-523- Construct Retrieval System Tank C-107	01SEP11	30AUG13	39,435,202.40
290.Q52 Procure Equip for C-107 Sluicing Retrieval Sys				
29Q52A	W-523 - Procure Retrieval System Tank C-107	01SEP11	28AUG12	4,315,502.00
290.Q60 Startup/Test the C-107 Sluicing Retrieval Sys				
29Q60A1	Prepare New Operating Procedure C-107	17SEP13	25NOV13	248,698.62
29Q60A2	Prepare New Maintenance Procedure C-107	27SEP13	25NOV13	178,425.39
29Q60A3	Prep Proc Chg Auth (PCA) Process for Op	17SEP13	25NOV13	65,892.24
29Q60A4	Prep Proc Chg Auth (PCA) Process - Maint	27SEP13	25NOV13	29,658.40
29Q60B1	Prep Startup Operational Training Matls C-107	03SEP13	30OCT13	101,666.60
29Q60B2	Perf Startup Operational Training C-107	05AUG13	30OCT13	258,978.32
29Q60C	Perform Drills C-107	31OCT13	02DEC13	64,649.61
29Q60D1	Prepare Operational Test Procedures C-107	03JUN13	30AUG13	112,576.02
29Q60D2	Perform Rq'd Operational Tests for C-107	03SEP13	30OCT13	412,783.80



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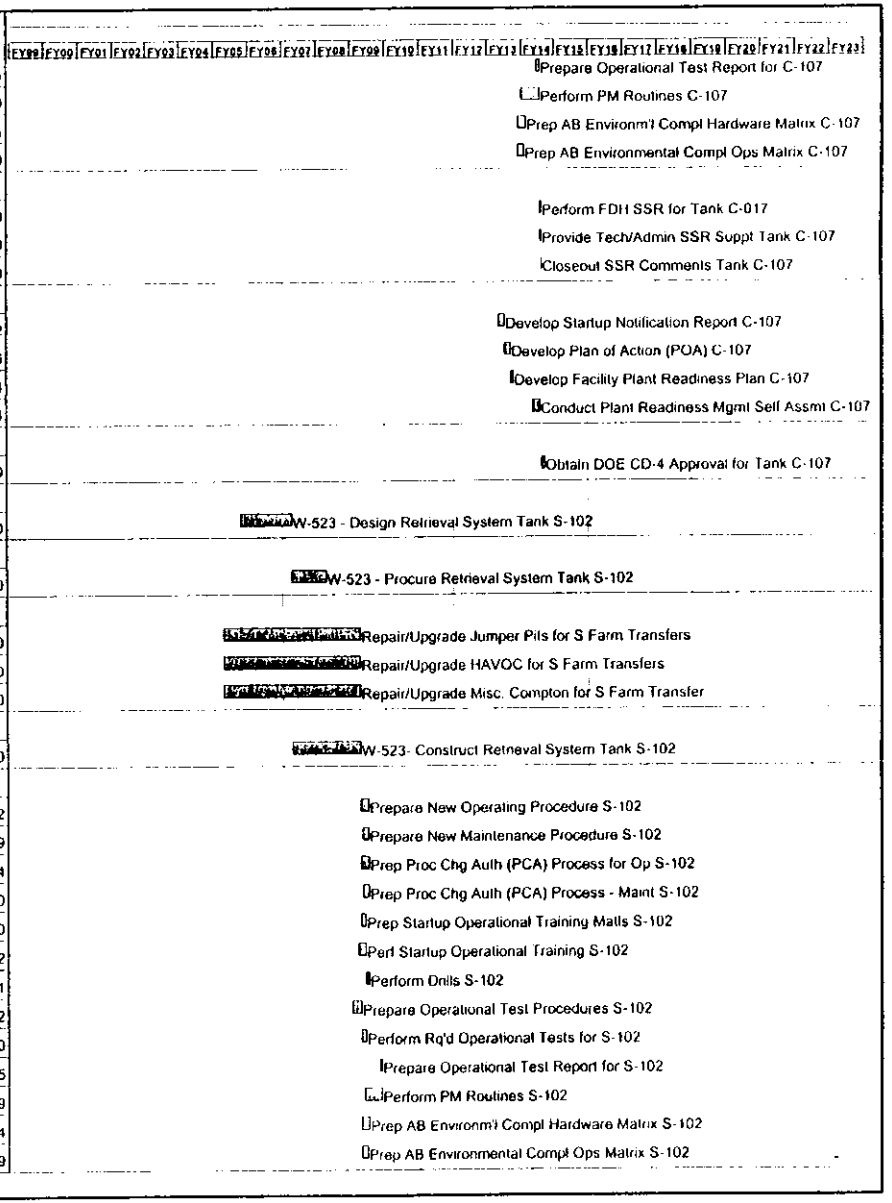
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
29Q60D3	Prepare Operational Test Report for C-107	24MAR14	21APR14	42,516.75
29Q60E	Perform PM Routines C-107	15OCT13	21APR14	216,231.69
29Q60F1	Prep AB Environm't Compl Hardware Matrix	03SEP13	25NOV13	57,585.54
29Q60F2	Prep AB Environmental Compl Ops Matrix	03SEP13	11NOV13	62,225.69
290.Q80 Perf Contractor Standard Startup Rvw for C-107				
29Q80A	Perform FDH SSR for Tank C-017	22APR14	12MAY14	67,100.00
29Q80B	Provide Tech/Admin SSR Suppt Tank C-107	22APR14	05MAY14	108,833.40
29Q80C	Closeout SSR Comments Tank C-107	06MAY14	12MAY14	37,584.00
290.Q83 Perform MSA for the C-107 Sluicing Retrieval Sys				
29Q83A	Develop Startup Notification Report C-107	08FEB13*	12APR13	21,129.72
29Q83B	Develop Plan of Action (POA) C-107	15APR13	10JUN13	11,429.76
29Q83D	Develop Facility Plant Readiness Plan C-107	11JUN13	24JUL13	41,385.04
29Q83E	Conduct Plant Readiness Mgmt Self Assmt	27JAN14	21APR14	134,922.84
290.Q90 Provide CD-4 Approval for C-107				
29Q90A	Obtain DOE CD-4 Approval for Tank C-107	13MAY14	10JUN14	0.00
290.Z50 Design S-102 Sluicing Retrieval Sys Obtain CD-3				
29Z50A	W-523 - Design Retrieval System Tank S-102	01JUL05*	29DEC06	8,495,778.80
290.Z52 Procure Equip for S-102 Sluicing Retrieval Sys				
29Z52A	W-523 - Procure Retrieval System Tank S-102	02JAN07	31DEC07	4,315,502.00
290.Z54 Repair/Upgrade Existing S Tank Farm Systems				
29Z54A	Repair/Upgrade Jumper Pits for S Farm	04JAN05	31DEC08	657,612.00
29Z54B	Repair/Upgrade HAVOC for S Farm Transfers	04JAN05	31DEC08	3,249,628.40
29Z54C	Repair/Upgrade Misc. Compton for S Farm	04JAN05	31DEC08	4,290,010.00
290.Z55 Construct the S-102 Sluicing Retrieval System				
29Z55A	W-523- Construct Retrieval System Tank S-102	02JAN07	31DEC08	39,435,202.40
290.Z60 Startup/Test the S-102 Sluicing Retrieval Sys				
29Z60A1	Prepare New Operating Procedure S-102	16JAN09	27MAR09	248,698.62
29Z60A2	Prepare New Maintenance Procedure S-102	28JAN09	27MAR09	178,425.39
29Z60A3	Prep Proc Chg Auth (PCA) Process for Op	16JAN09	27MAR09	65,892.24
29Z60A4	Prep Proc Chg Auth (PCA) Process - Maint	28JAN09	27MAR09	29,658.40
29Z60B1	Prep Startup Operational Training Matls S-102	02JAN09	03MAR09	101,666.60
29Z60B2	Perf Startup Operational Training S-102	02DEC08	03MAR09	258,978.32
29Z60C	Perform Drills S-102	04MAR09	01APR09	64,649.61
29Z60D1	Prepare Operational Test Procedures S-102	30SEP08*	31DEC08	112,576.02
29Z60D2	Perform Rq'd Operational Tests for S-102	02JAN09	03MAR09	412,783.80
29Z60D3	Prepare Operational Test Report for S-102	21JUL09	18AUG09	42,516.75
29Z60E	Perform PM Routines S-102	13FEB09	18AUG09	216,231.69
29Z60F1	Prep AB Environm't Compl Hardware Matrix	02JAN09	27MAR09	57,585.54
29Z60F2	Prep AB Environmental Compl Ops Matrix	02JAN09	13MAR09	62,225.69



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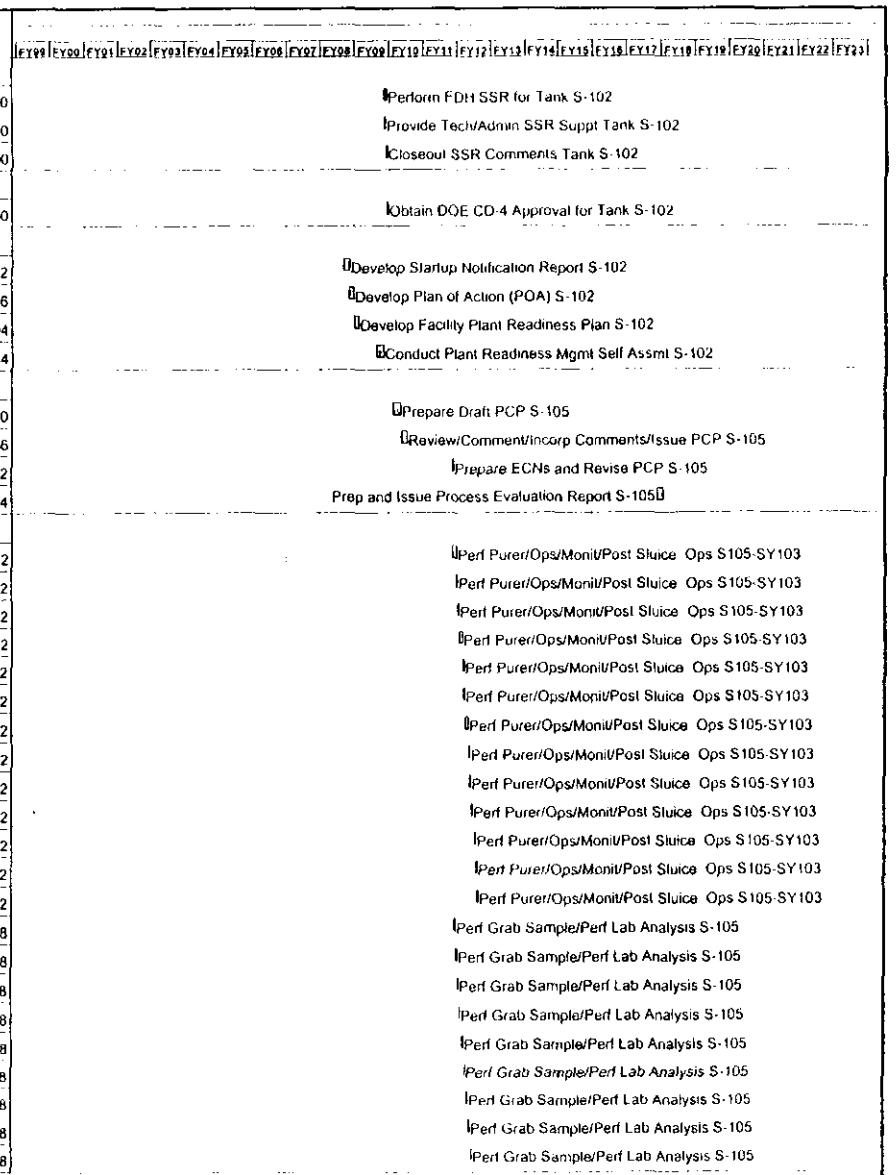
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
290.Z70	**Perf Contractor Standard Startup Rvw for S-102**			
29Z70A	Perform FDH SSR for Tank S-102	19AUG09	09SEP09	67,100.00
29Z70B	Provide Tech/Admin SSR Suppt Tank S-102	19AUG09	01SEP09	108,833.40
29Z70C	Closeout SSR Comments Tank S-102	02SEP09	09SEP09	37,584.00
290.Z75	**Provide CD-4 Approval for S-102**			
29Z75A	Obtain DOE CD-4 Approval for Tank S-102	10SEP09	07OCT09	0.00
290.Z83	**Perform MSA for the S-102 Sluicing Retrieval Sys**			
29Z83A	Develop Startup Notification Report S-102	06JUN08*	11AUG08	21,129.72
29Z83B	Develop Plan of Action (POA) S-102	12AUG08	07OCT08	11,429.76
29Z83D	Develop Facility Plant Readiness Plan S-102	08OCT08	18NOV08	41,385.04
29Z83E	Conduct Plant Readiness Mgmt Self Assmt	22MAY09	18AUG09	134,922.84
300.I25	**Prepare Process Control Plan for S-105**			
30I25A	Prepare Draft PCP S-105	18NOV09*	17FEB10	47,652.40
30I25B	Review/Comment/Incorp Comments/Issue PCP	18FEB10	16APR10	72,559.36
30I25D	Prepare ECNs and Revise PCP S-105	11AUG11	08SEP11	11,408.92
30I25E	Prep and Issue Process Evaluation Report	01SEP17	27OCT17	37,544.84
300.I29	**Sluice S-105 into SY-103**			
30I29AA	Perf Purer/Ops/Monit/Post Sluice Ops	11AUG11	29SEP11	290,014.82
30I29AB	Perf Purer/Ops/Monit/Post Sluice Ops	30SEP11	20OCT11	290,014.82
30I29AC	Perf Purer/Ops/Monit/Post Sluice Ops	21OCT11	10NOV11	290,014.82
30I29AD	Perf Purer/Ops/Monit/Post Sluice Ops	11NOV11	05DEC11	290,014.82
30I29AE	Perf Purer/Ops/Monit/Post Sluice Ops	06DEC11	28DEC11	290,014.82
30I29AF	Perf Purer/Ops/Monit/Post Sluice Ops	29DEC11	19JAN12	290,014.82
30I29AG	Perf Purer/Ops/Monit/Post Sluice Ops	20JAN12	09FEB12	290,014.82
30I29AH	Perf Purer/Ops/Monit/Post Sluice Ops	10FEB12	02MAR12	290,014.82
30I29AJ	Perf Purer/Ops/Monit/Post Sluice Ops	05MAR12	23MAR12	290,014.82
30I29AK	Perf Purer/Ops/Monit/Post Sluice Ops	26MAR12	13APR12	290,014.82
30I29AM	Perf Purer/Ops/Monit/Post Sluice Ops	16APR12	04MAY12	290,014.82
30I29AN	Perf Purer/Ops/Monit/Post Sluice Ops	07MAY12	25MAY12	290,014.82
30I29AP	Perf Purer/Ops/Monit/Post Sluice Ops	29MAY12	18JUN12	290,014.82
30I29BA	Perf Grab Sample/Perf Lab Analysis S-105	22SEP11	28SEP11	223,232.88
30I29BB	Perf Grab Sample/Perf Lab Analysis S-105	13OCT11	19OCT11	223,232.88
30I29BC	Perf Grab Sample/Perf Lab Analysis S-105	03NOV11	09NOV11	223,232.88
30I29BD	Perf Grab Sample/Perf Lab Analysis S-105	24NOV11	30NOV11	223,232.88
30I29BE	Perf Grab Sample/Perf Lab Analysis S-105	17DEC11	23DEC11	223,232.88
30I29BF	Perf Grab Sample/Perf Lab Analysis S-105	12JAN12	18JAN12	223,232.88
30I29BG	Perf Grab Sample/Perf Lab Analysis S-105	02FEB12	08FEB12	223,232.88
30I29BH	Perf Grab Sample/Perf Lab Analysis S-105	24FEB12	01MAR12	223,232.88
30I29BJ	Perf Grab Sample/Perf Lab Analysis S-105	16MAR12	22MAR12	223,232.88



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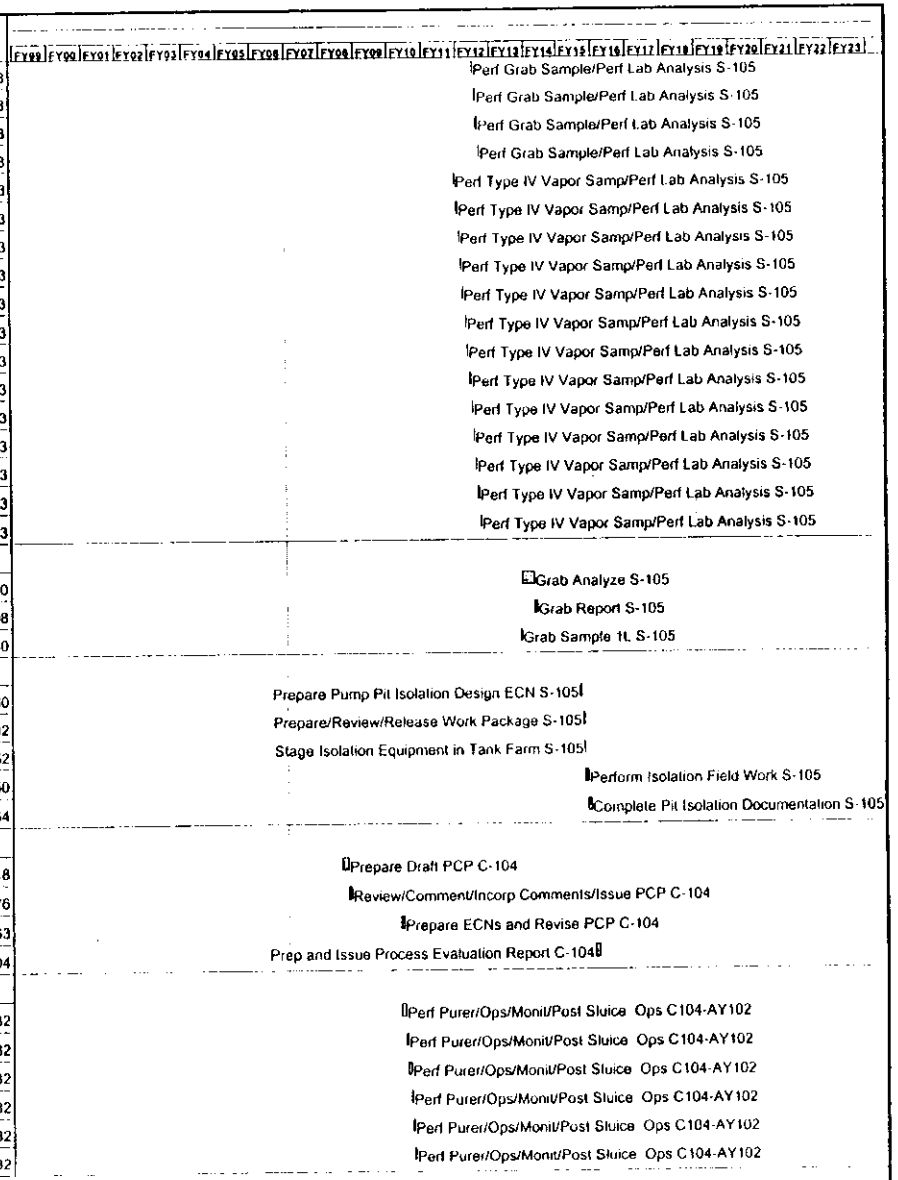
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
30I29BK	Perf Grab Sample/Perf Lab Analysis S-105	06APR12	12APR12	223,232.88
30I29BM	Perf Grab Sample/Perf Lab Analysis S-105	27APR12	03MAY12	223,232.88
30I29BN	Perf Grab Sample/Perf Lab Analysis S-105	18MAY12	24MAY12	223,232.88
30I29BP	Perf Grab Sample/Perf Lab Analysis S-105	09JUN12	15JUN12	223,232.88
30I29CA	Perf Type IV Vapor Samp/Perf Lab Analysis	22SEP11	24SEP11	127,997.63
30I29CB	Perf Type IV Vapor Samp/Perf Lab Analysis	13OCT11	15OCT11	127,997.63
30I29CC	Perf Type IV Vapor Samp/Perf Lab Analysis	03NOV11	05NOV11	127,997.63
30I29CD	Perf Type IV Vapor Samp/Perf Lab Analysis	24NOV11	26NOV11	127,997.63
30I29CE	Perf Type IV Vapor Samp/Perf Lab Analysis	17DEC11	19DEC11	127,997.63
30I29CF	Perf Type IV Vapor Samp/Perf Lab Analysis	12JAN12	14JAN12	127,997.63
30I29CG	Perf Type IV Vapor Samp/Perf Lab Analysis	02FEB12	04FEB12	127,997.63
30I29CH	Perf Type IV Vapor Samp/Perf Lab Analysis	24FEB12	26FEB12	127,997.63
30I29CJ	Perf Type IV Vapor Samp/Perf Lab Analysis	16MAR12	18MAR12	127,997.63
30I29CK	Perf Type IV Vapor Samp/Perf Lab Analysis	06APR12	08APR12	127,997.63
30I29CM	Perf Type IV Vapor Samp/Perf Lab Analysis	27APR12	29APR12	127,997.63
30I29CN	Perf Type IV Vapor Samp/Perf Lab Analysis	18MAY12	20MAY12	127,997.63
30I29CP	Perf Type IV Vapor Samp/Perf Lab Analysis	09JUN12	11JUN12	127,997.63
300.I30	**Perform S-105 Post Retrieval Verification**			
30I30S58	Grab Analyze S-105	26AUG13	30DEC13	33,415.80
30I30S58	Grab Report S-105	31DEC13	05FEB14	32,178.08
30I30S58	Grab Sample 1L S-105	01AUG13*	23AUG13	89,794.80
300.I34	**Perform S-105 Intrusion Prevention**			
30I34A	Prepare Pump Pit Isolation Design ECN S-105	27APR15*	22MAY15	15,804.30
30I34B	Prepare/Review/Release Work Package S-105	26MAY15	22JUN15	3,229.92
30I34C	Stage Isolation Equipment in Tank Farm S-105	23JUN15	24JUN15	7,643.52
30I34D	Perform Isolation Field Work S-105	25JUN15	17JUL15	66,807.50
30I34E	Complete Pit Isolation Documentation S-105	20JUL15	14AUG15	2,972.64
300.J20	**Prepare Process Control Plan for C-104**			
30J20A	Prepare Draft PCP C-104	21APR08*	16JUN08	31,430.18
30J20B	Review/Comment/Incorp Comments/Issue PCP	17JUN08	28JUL08	48,750.76
30J20D	Prepare ECNs and Revise PCP C-104	11JAN10	05FEB10	8,150.63
30J20E	Prep and Issue Process Evaluation Report	18SEP15	12NOV15	24,622.04
300.J29	**Sluice C-104 into AY-102**			
30J29AA	Perf Purer/Ops/Monit/Post Sluice Ops	11JAN10	01MAR10	290,014.82
30J29AB	Perf Purer/Ops/Monit/Post Sluice Ops	02MAR10	22MAR10	290,014.82
30J29AC	Perf Purer/Ops/Monit/Post Sluice Ops	23MAR10	12APR10	290,014.82
30J29AD	Perf Purer/Ops/Monit/Post Sluice Ops	13APR10	03MAY10	290,014.82
30J29AE	Perf Purer/Ops/Monit/Post Sluice Ops	04MAY10	24MAY10	290,014.82
30J29AF	Perf Purer/Ops/Monit/Post Sluice Ops	25MAY10	15JUN10	290,014.82



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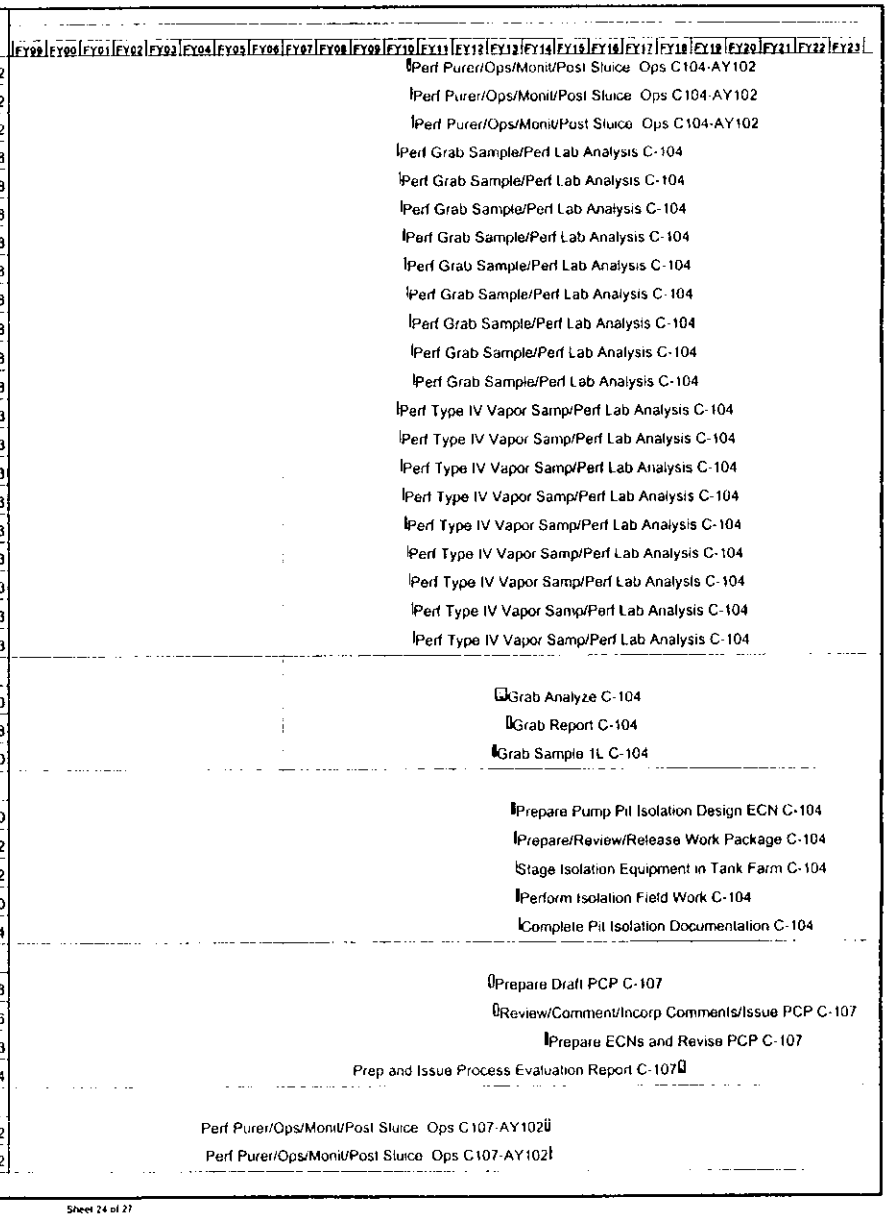
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
30J29AG	Perf Purer/Ops/Monit/Post Sluice Ops	16JUN10	08JUL10	290,014.82
30J29AH	Perf Purer/Ops/Monit/Post Sluice Ops	09JUL10	29JUL10	290,014.82
30J29AJ	Perf Purer/Ops/Monit/Post Sluice Ops	30JUL10	19AUG10	290,014.82
30J29BA	Perf Grab Sample/Perf Lab Analysis C-104	20FEB10	26FEB10	223,232.88
30J29BB	Perf Grab Sample/Perf Lab Analysis C-104	13MAR10	19MAR10	223,232.88
30J29BC	Perf Grab Sample/Perf Lab Analysis C-104	03APR10	09APR10	223,232.88
30J29BD	Perf Grab Sample/Perf Lab Analysis C-104	24APR10	30APR10	223,232.88
30J29BE	Perf Grab Sample/Perf Lab Analysis C-104	15MAY10	21MAY10	223,232.88
30J29BF	Perf Grab Sample/Perf Lab Analysis C-104	08JUN10	14JUN10	223,232.88
30J29BG	Perf Grab Sample/Perf Lab Analysis C-104	29JUN10	05JUL10	223,232.88
30J29BH	Perf Grab Sample/Perf Lab Analysis C-104	22JUL10	28JUL10	223,232.88
30J29BJ	Perf Grab Sample/Perf Lab Analysis C-104	12AUG10	18AUG10	223,232.88
30J29CA	Perf Type IV Vapor Samp/Perf Lab Analysis	20FEB10	22FEB10	127,997.63
30J29CB	Perf Type IV Vapor Samp/Perf Lab Analysis	13MAR10	15MAR10	127,997.63
30J29CC	Perf Type IV Vapor Samp/Perf Lab Analysis	03APR10	05APR10	127,997.63
30J29CD	Perf Type IV Vapor Samp/Perf Lab Analysis	24APR10	26APR10	127,997.63
30J29CE	Perf Type IV Vapor Samp/Perf Lab Analysis	15MAY10	17MAY10	127,997.63
30J29CF	Perf Type IV Vapor Samp/Perf Lab Analysis	08JUN10	10JUN10	127,997.63
30J29CG	Perf Type IV Vapor Samp/Perf Lab Analysis	29JUN10	01JUL10	127,997.63
30J29CH	Perf Type IV Vapor Samp/Perf Lab Analysis	22JUL10	24JUL10	127,997.63
30J29CJ	Perf Type IV Vapor Samp/Perf Lab Analysis	12AUG10	14AUG10	127,997.63
300.J30	**Perform C-104 Post Retrieval Verification**			
30J30C2	Grab Analyze C-104	31DEC12	01MAY13	33,415.80
30J30C2	Grab Report C-104	02MAY13	07JUN13	32,178.08
30J30C2	Grab Sample 1L C-104	03DEC12*	28DEC12	89,794.80
300.J34	**Perform C-104 Intrusion Prevention**			
30J34A	Prepare Pump Pit Isolation Design ECN C-104	10JUN13	09JUL13	15,804.30
30J34B	Prepare/Review/Release Work Package C-104	10JUL13	06AUG13	3,229.92
30J34C	Stage Isolation Equipment in Tank Farm C-104	07AUG13	08AUG13	7,643.52
30J34D	Perform Isolation Field Work C-104	09AUG13	29AUG13	66,807.50
30J34E	Complete Pit Isolation Documentation C-104	30AUG13	27SEP13	2,972.64
300.Q20	**Prepare Process Control Plan for C-107**			
30Q20A	Prepare Draft PCP C-107	17OCT12*	13DEC12	31,430.18
30Q20B	Review/Comment/Incorp Comments/Issue PCP	14DEC12	28JAN13	48,750.76
30Q20D	Prepare ECNs and Revise PCP C-107	11JUN14	10JUL14	8,150.63
30Q20E	Prep and Issue Process Evaluation Report	22MAY18	18JUL18	24,622.04
300.Q29	**Sluice C-107 into AY-102**			
30Q29AA	Perf Purer/Ops/Monit/Post Sluice Ops	11JUN14	31JUL14	290,014.82
30Q29AB	Perf Purer/Ops/Monit/Post Sluice Ops	01AUG14	21AUG14	290,014.82



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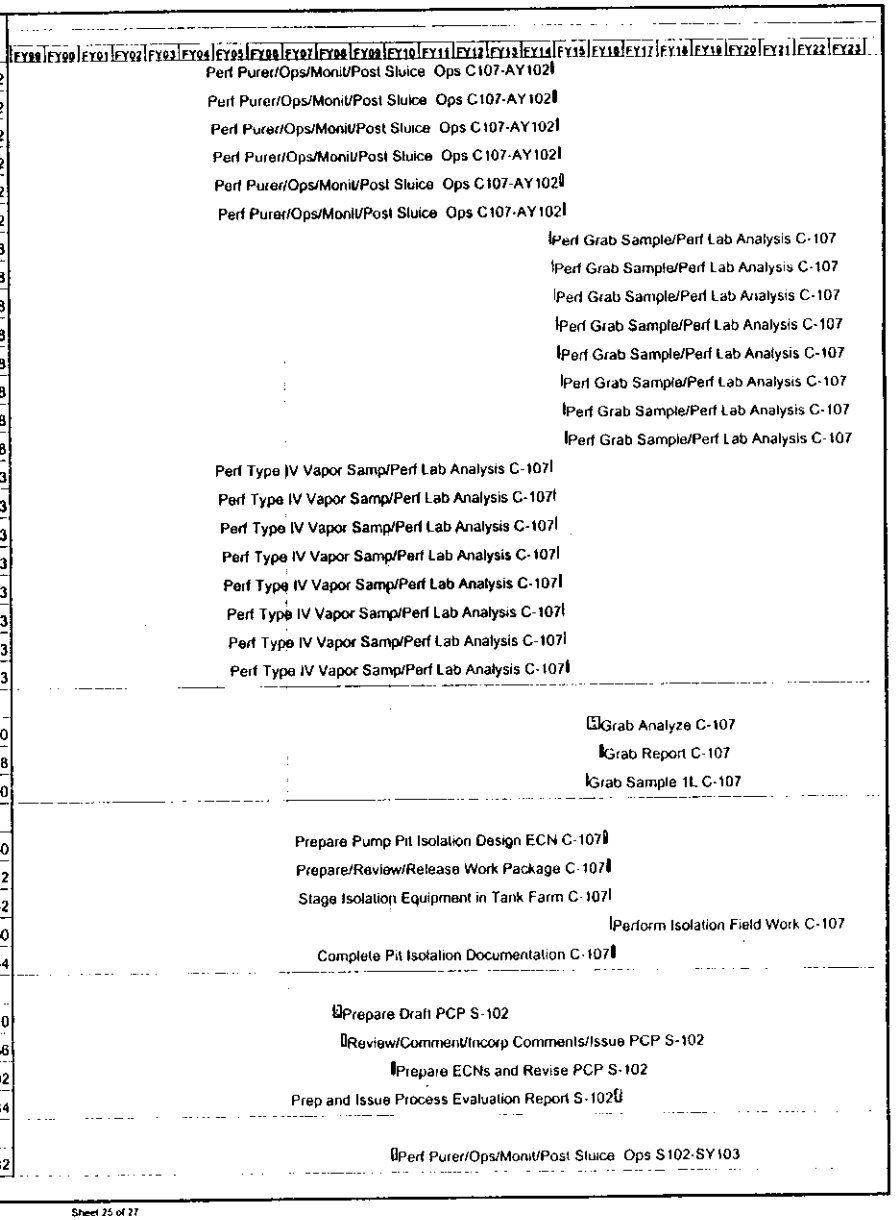
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
30Q29AC	Perf Purer/Ops/Monit/Post Sluice Ops	22AUG14	12SEP14	290,014.82
30Q29AD	Perf Purer/Ops/Monit/Post Sluice Ops	15SEP14	03OCT14	290,014.82
30Q29AE	Perf Purer/Ops/Monit/Post Sluice Ops	06OCT14	24OCT14	290,014.82
30Q29AF	Perf Purer/Ops/Monit/Post Sluice Ops	27OCT14	14NOV14	290,014.82
30Q29AG	Perf Purer/Ops/Monit/Post Sluice Ops	17NOV14	09DEC14	290,014.82
30Q29AH	Perf Purer/Ops/Monit/Post Sluice Ops	10DEC14	02JAN15	290,014.82
30Q29BA	Perf Grab Sample/Perf Lab Analysis C-107	24JUL14	30JUL14	223,232.88
30Q29BB	Perf Grab Sample/Perf Lab Analysis C-107	14AUG14	20AUG14	223,232.88
30Q29BC	Perf Grab Sample/Perf Lab Analysis C-107	05SEP14	11SEP14	223,232.88
30Q29BD	Perf Grab Sample/Perf Lab Analysis C-107	26SEP14	02OCT14	223,232.88
30Q29BE	Perf Grab Sample/Perf Lab Analysis C-107	17OCT14	23OCT14	223,232.88
30Q29BF	Perf Grab Sample/Perf Lab Analysis C-107	07NOV14	13NOV14	223,232.88
30Q29BG	Perf Grab Sample/Perf Lab Analysis C-107	02DEC14	08DEC14	223,232.88
30Q29BH	Perf Grab Sample/Perf Lab Analysis C-107	23DEC14	29DEC14	223,232.88
30Q29CA	Perf Type IV Vapor Samp/Perf Lab Analysis	24JUL14	26JUL14	127,997.63
30Q29CB	Perf Type IV Vapor Samp/Perf Lab Analysis	14AUG14	16AUG14	127,997.63
30Q29CC	Perf Type IV Vapor Samp/Perf Lab Analysis	05SEP14	07SEP14	127,997.63
30Q29CD	Perf Type IV Vapor Samp/Perf Lab Analysis	26SEP14	28SEP14	127,997.63
30Q29CE	Perf Type IV Vapor Samp/Perf Lab Analysis	17OCT14	19OCT14	127,997.63
30Q29CF	Perf Type IV Vapor Samp/Perf Lab Analysis	07NOV14	09NOV14	127,997.63
30Q29CG	Perf Type IV Vapor Samp/Perf Lab Analysis	02DEC14	04DEC14	127,997.63
30Q29CH	Perf Type IV Vapor Samp/Perf Lab Analysis	23DEC14	25DEC14	127,997.63
300.Q30 Perform C-107 Post Retrieval Verification				
30Q30C3	Grab Analyze C-107	28JUL15	25NOV15	33,415.80
30Q30C3	Grab Report C-107	30NOV15	07JAN16	32,178.08
30Q30C3	Grab Sample 1L C-107	01JUL15*	27JUL15	89,794.80
300.Q34 Perform C-107 Intrusion Prevention				
30Q34A	Prepare Pump Pit Isolation Design ECN C-107	08JAN16	04FEB16	15,804.30
30Q34B	Prepare/Review/Release Work Package C-107	05FEB16	04MAR16	3,229.92
30Q34C	Stage Isolation Equipment in Tank Farm C-107	07MAR16	08MAR16	7,643.52
30Q34D	Perform Isolation Field Work C-107	09MAR16	29MAR16	66,807.50
30Q34E	Complete Pit Isolation Documentation C-107	30MAR16	26APR16	2,972.64
300.Z25 Prepare Process Control Plan for S-102				
30Z25A	Prepare Draft PCP S-102	22JAN08*	15APR08	47,652.40
30Z25B	Review/Comment/Incorp Comments/Issue PCP	16APR08	13JUN08	72,559.36
30Z25D	Prepare ECNs and Revise PCP S-102	08OCT09	04NOV09	11,408.92
30Z25E	Prep and Issue Process Evaluation Report	02MAY16	27JUN16	37,544.84
300.Z29 Sluice S-102 into SY-103				
30Z29AA	Perf Purer/Ops/Monit/Post Sluice Ops	08OCT09	25NOV09	290,014.82



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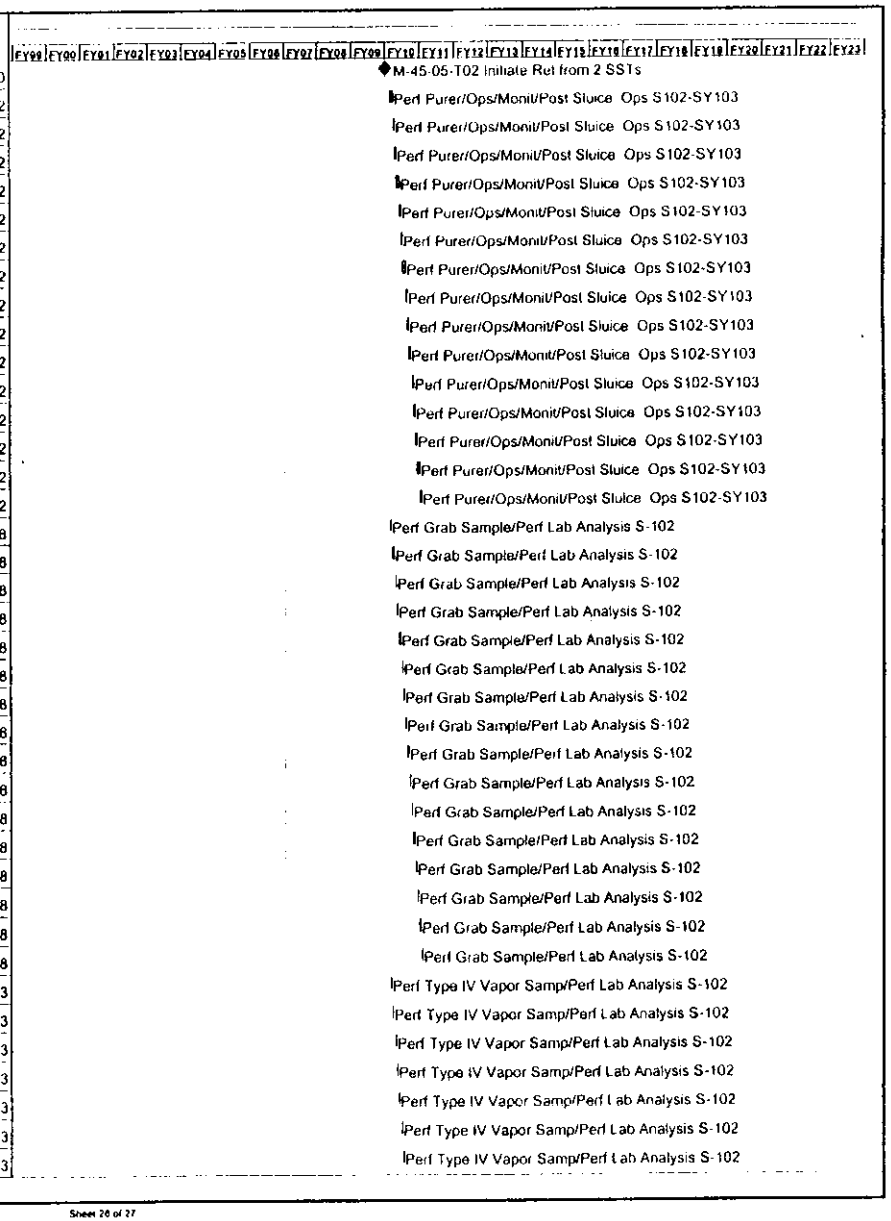
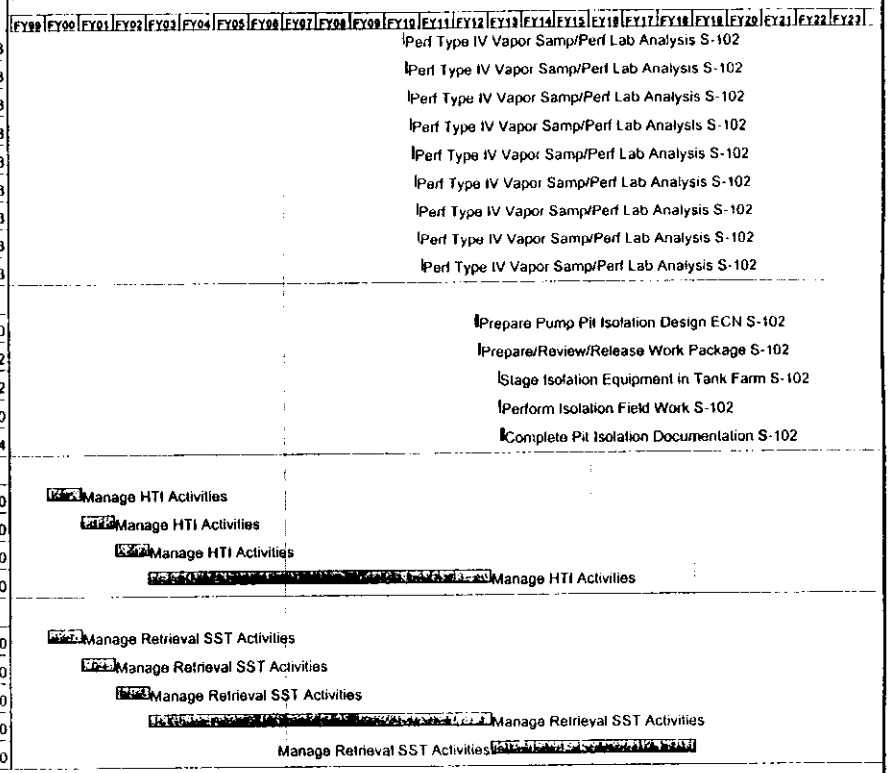
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
30Z29AA	M-45-05-T02 Initiate Ret from 2 SSTs	08OCT09		0.00
30Z29AB	Perf Purer/Ops/Monit/Post Sluice Ops	30NOV09	18DEC09	290,014.82
30Z29AC	Perf Purer/Ops/Monit/Post Sluice Ops	21DEC09	13JAN10	290,014.82
30Z29AD	Perf Purer/Ops/Monit/Post Sluice Ops	14JAN10	03FEB10	290,014.82
30Z29AE	Perf Purer/Ops/Monit/Post Sluice Ops	04FEB10	25FEB10	290,014.82
30Z29AF	Perf Purer/Ops/Monit/Post Sluice Ops	26FEB10	18MAR10	290,014.82
30Z29AG	Perf Purer/Ops/Monit/Post Sluice Ops	19MAR10	08APR10	290,014.82
30Z29AH	Perf Purer/Ops/Monit/Post Sluice Ops	09APR10	29APR10	290,014.82
30Z29AJ	Perf Purer/Ops/Monit/Post Sluice Ops	30APR10	20MAY10	290,014.82
30Z29AK	Perf Purer/Ops/Monit/Post Sluice Ops	21MAY10	11JUN10	290,014.82
30Z29AM	Perf Purer/Ops/Monit/Post Sluice Ops	14JUN10	02JUL10	290,014.82
30Z29AN	Perf Purer/Ops/Monit/Post Sluice Ops	07JUL10	27JUL10	290,014.82
30Z29AP	Perf Purer/Ops/Monit/Post Sluice Ops	28JUL10	17AUG10	290,014.82
30Z29AQ	Perf Purer/Ops/Monit/Post Sluice Ops	18AUG10	08SEP10	290,014.82
30Z29AR	Perf Purer/Ops/Monit/Post Sluice Ops	09SEP10	29SEP10	290,014.82
30Z29AS	Perf Purer/Ops/Monit/Post Sluice Ops	30SEP10	20OCT10	290,014.82
30Z29BA	Perf Grab Sample/Perf Lab Analysis S-102	18NOV09	24NOV09	223,232.88
30Z29BB	Perf Grab Sample/Perf Lab Analysis S-102	11DEC09	17DEC09	223,232.88
30Z29BC	Perf Grab Sample/Perf Lab Analysis S-102	06JAN10	12JAN10	223,232.88
30Z29BD	Perf Grab Sample/Perf Lab Analysis S-102	27JAN10	02FEB10	223,232.88
30Z29BE	Perf Grab Sample/Perf Lab Analysis S-102	18FEB10	24FEB10	223,232.88
30Z29BF	Perf Grab Sample/Perf Lab Analysis S-102	11MAR10	17MAR10	223,232.88
30Z29BG	Perf Grab Sample/Perf Lab Analysis S-102	01APR10	07APR10	223,232.88
30Z29BH	Perf Grab Sample/Perf Lab Analysis S-102	22APR10	28APR10	223,232.88
30Z29BJ	Perf Grab Sample/Perf Lab Analysis S-102	13MAY10	19MAY10	223,232.88
30Z29BK	Perf Grab Sample/Perf Lab Analysis S-102	04JUN10	10JUN10	223,232.88
30Z29BM	Perf Grab Sample/Perf Lab Analysis S-102	25JUN10	01JUL10	223,232.88
30Z29BN	Perf Grab Sample/Perf Lab Analysis S-102	20JUL10	26JUL10	223,232.88
30Z29BP	Perf Grab Sample/Perf Lab Analysis S-102	10AUG10	16AUG10	223,232.88
30Z29BQ	Perf Grab Sample/Perf Lab Analysis S-102	31AUG10	06SEP10	223,232.88
30Z29BR	Perf Grab Sample/Perf Lab Analysis S-102	22SEP10	28SEP10	223,232.88
30Z29BS	Perf Grab Sample/Perf Lab Analysis S-102	13OCT10	19OCT10	223,232.88
30Z29CA	Perf Type IV Vapor Samp/Perf Lab Analysis	18NOV09	20NOV09	127,997.63
30Z29CB	Perf Type IV Vapor Samp/Perf Lab Analysis	11DEC09	13DEC09	127,997.63
30Z29CC	Perf Type IV Vapor Samp/Perf Lab Analysis	06JAN10	08JAN10	127,997.63
30Z29CD	Perf Type IV Vapor Samp/Perf Lab Analysis	27JAN10	29JAN10	127,997.63
30Z29CE	Perf Type IV Vapor Samp/Perf Lab Analysis	18FEB10	20FEB10	127,997.63
30Z29CF	Perf Type IV Vapor Samp/Perf Lab Analysis	11MAR10	13MAR10	127,997.63
30Z29CG	Perf Type IV Vapor Samp/Perf Lab Analysis	01APR10	03APR10	127,997.63



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost
30Z29CH	Perf Type IV Vapor Samp/Perf Lab Analysis	22APR10	24APR10	127,997.63
30Z29CJ	Perf Type IV Vapor Samp/Perf Lab Analysis	13MAY10	15MAY10	127,997.63
30Z29CK	Perf Type IV Vapor Samp/Perf Lab Analysis	04JUN10	06JUN10	127,997.63
30Z29CM	Perf Type IV Vapor Samp/Perf Lab Analysis	25JUN10	27JUN10	127,997.63
30Z29CN	Perf Type IV Vapor Samp/Perf Lab Analysis	20JUL10	22JUL10	127,997.63
30Z29CP	Perf Type IV Vapor Samp/Perf Lab Analysis	10AUG10	12AUG10	127,997.63
30Z29CQ	Perf Type IV Vapor Samp/Perf Lab Analysis	31AUG10	02SEP10	127,997.63
30Z29CR	Perf Type IV Vapor Samp/Perf Lab Analysis	22SEP10	24SEP10	127,997.63
30Z29CS	Perf Type IV Vapor Samp/Perf Lab Analysis	13OCT10	15OCT10	127,997.63
300.Z34	**Perform S-102 Intrusion Prevention**			
30Z34A	Prepare Pump Pit Isolation Design ECN S-102	09MAY12*	06JUN12	15,804.30
30Z34B	Prepare/Review/Release Work Package S-102	07JUN12	05JUL12	3,229.92
30Z34C	Stage Isolation Equipment in Tank Farm S-102	09JAN13	10JAN13	7,643.52
30Z34D	Perform Isolation Field Work S-102	11JAN13	31JAN13	66,807.50
30Z34E	Complete Pit Isolation Documentation S-102	01FEB13	01MAR13	2,972.64
710.710	**Perform Hanford Tanks Initiatives Activities**			
71710A1	Manage HTI Activities	01OCT99*	29SEP00	219,600.00
71710A2	Manage HTI Activities	02OCT00	28SEP01	219,600.00
71710A3	Manage HTI Activities	01OCT01	30SEP02	219,600.00
71710A4	Manage HTI Activities	01OCT02	28SEP12	2,196,000.00
710.716	**Manage Retrieval SST Activities**			
71716A1	Manage Retrieval SST Activities	01OCT99*	29SEP00	936,015.20
71716A2	Manage Retrieval SST Activities	02OCT00	28SEP01	1,772,136.10
71716A3	Manage Retrieval SST Activities	01OCT01	30SEP02	1,772,136.10
71716A4	Manage Retrieval SST Activities	01OCT02	28SEP12	17,721,361.00
71716A5	Manage Retrieval SST Activities	01OCT12	28SEP18	10,632,816.60



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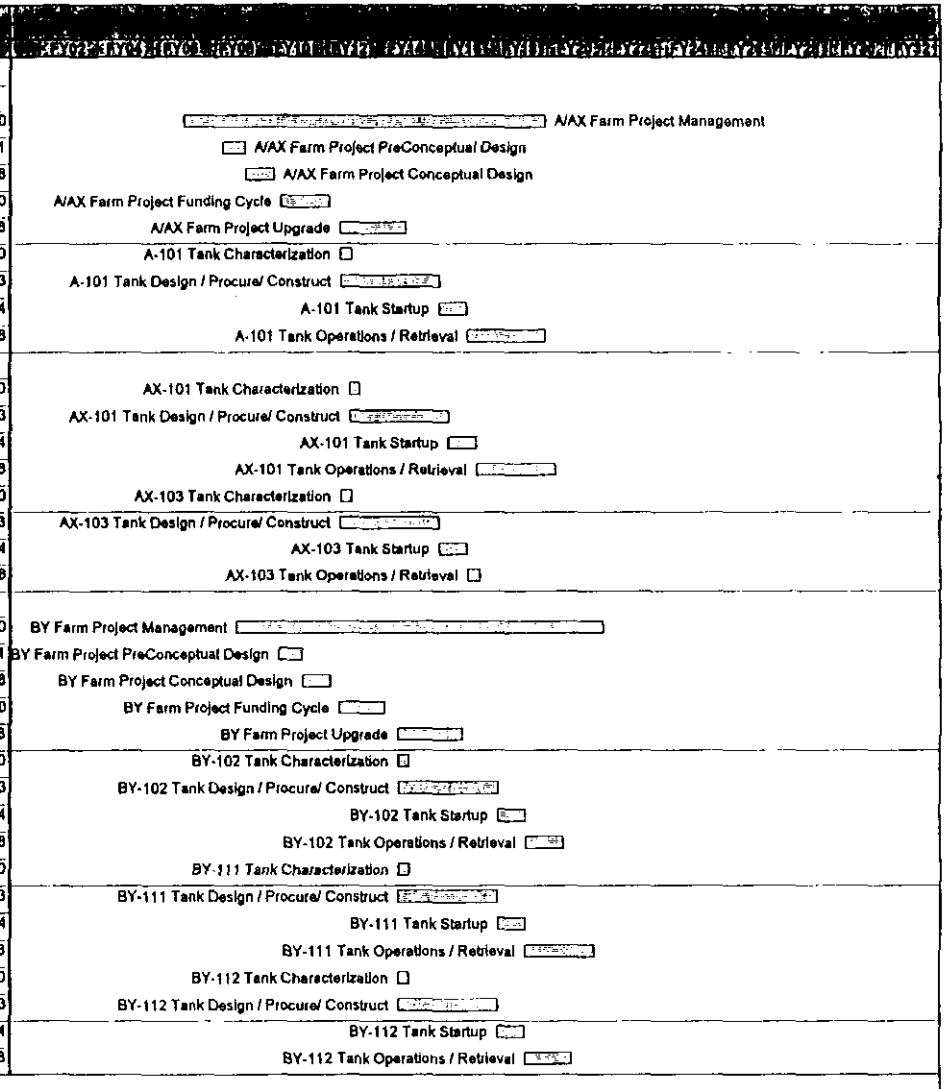
Single Shell Backfill Tanks

A Farm				
A/AX Farm Project Management	3,239	21OCT05	18SEP18	20,000,000
A/AX Farm Project PreConceptual Design	210	02APR07*	31JAN08	5,092,971
A/AX Farm Project Conceptual Design	251	01FEB08	30JAN09	8,000,668
A/AX Farm Project Funding Cycle	417	04MAY09*	31DEC10	0
A/AX Farm Project Upgrade	586	01JUN11*	30SEP13	8,138,628
A-101 Tank Characterization	92	01JUN11	11OCT11	1,750,000
A-101 Tank Design / Procure/ Construct	878	01JUN11*	26NOV14	42,001,983
A-101 Tank Startup	251	01DEC14	30NOV15	2,657,664
A-101 Tank Operations / Retrieval	693	01DEC15	31AUG18	5,867,968
AX Farm				
AX-101 Tank Characterization	92	03OCT11	14FEB12	1,750,000
AX-101 Tank Design / Procure/ Construct	876	03OCT11*	31MAR15	42,000,983
AX-101 Tank Startup	252	01APR15	31MAR16	2,657,664
AX-101 Tank Operations / Retrieval	711	01APR16	31JAN19	5,867,968
AX-103 Tank Characterization	92	01JUN11	11OCT11	1,750,000
AX-103 Tank Design / Procure/ Construct	878	01JUN11*	26NOV14	42,000,983
AX-103 Tank Startup	251	01DEC14	30NOV15	2,657,664
AX-103 Tank Operations / Retrieval	705	01DEC15	29APR18	5,867,968
BY Farm				
BY Farm Project Management	3,262	01OCT07	30SEP20	20,000,000
BY Farm Project PreConceptual Design	210	01APR09*	01FEB10	5,092,971
BY Farm Project Conceptual Design	251	02FEB10	01FEB11	8,000,148
BY Farm Project Funding Cycle	417	02MAY11*	28DEC12	0
BY Farm Project Upgrade	564	01JUL13*	29SEP15	8,138,628
BY-102 Tank Characterization	92	01JUL13	08NOV13	1,750,000
BY-102 Tank Design / Procure/ Construct	877	01JUL13*	29DEC16	42,000,983
BY-102 Tank Startup	251	30DEC16	29DEC17	2,657,664
BY-102 Tank Operations / Retrieval	335	02JAN18	30APR19	5,867,968
BY-111 Tank Characterization	92	01JUL13	08NOV13	1,750,000
BY-111 Tank Design / Procure/ Construct	877	01JUL13*	29DEC16	42,000,983
BY-111 Tank Startup	251	30DEC16	29DEC17	2,657,664
BY-111 Tank Operations / Retrieval	628	02JAN18	30JUN20	5,867,968
BY-112 Tank Characterization	92	01JUL13	08NOV13	1,750,000
BY-112 Tank Design / Procure/ Construct	876	01JUL13*	28DEC16	42,000,983
BY-112 Tank Startup	251	29DEC16	28DEC17	2,657,664
BY-112 Tank Operations / Retrieval	421	29DEC17	30AUG19	5,867,968



Project Start 01OCT07
Project Finish 31AUG20
Data Date 01OCT99
Run Date 03AUG99

Early Bar
Progress Bar
Critical Activity

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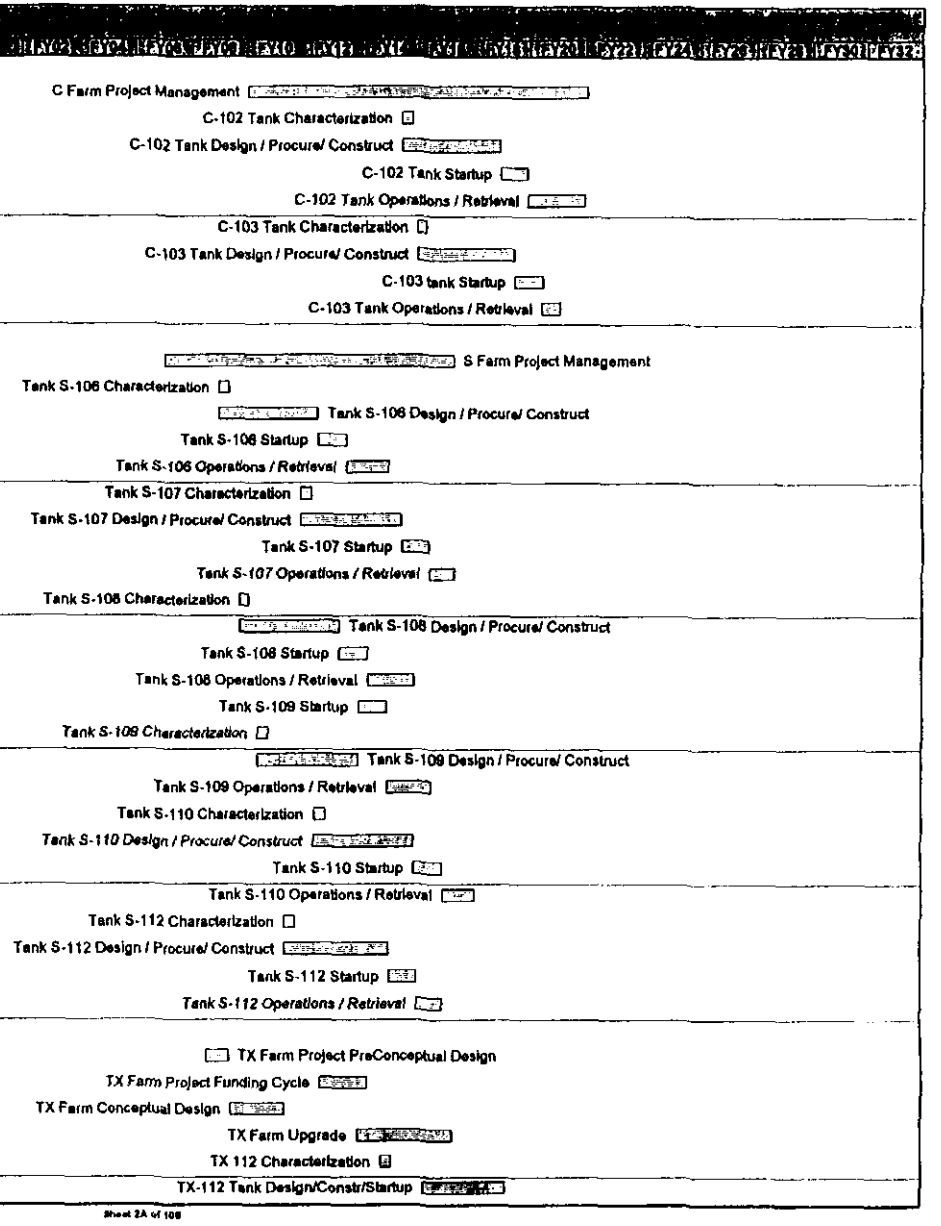
Single Shell Tank Waste Retrieval
Backfill and Other Tanks

Description	Duration	Start	Finish	Cost
C Farm				
C Farm Project Management	3,011	01OCT08	30SEP20	5,000,000
C-102 Tank Characterization	92	03MAR14	11JUL14	1,750,000
C-102 Tank Design / Procure/ Construct	881	03MAR14*	31AUG17	39,021,983
C-102 Tank Startup	250	01SEP17	29AUG18	2,657,664
C-102 Tank Operations / Retrieval	502	30AUG18	31AUG20	5,867,968
C-103 Tank Characterization	92	02SEP14	14JAN15	1,750,000
C-103 Tank Design / Procure/ Construct	876	02SEP14*	28FEB18	39,021,983
C-103 tank Startup	251	01MAR18	28FEB19	2,657,664
C-103 Tank Operations / Retrieval	171	01MAR19	31OCT19	5,867,968
S Farm				
S Farm Project Management	2,569	03OCT05	30DEC15	7,500,000
Tank S-106 Characterization	92	01OCT07	13FEB08	1,750,000
Tank S-106 Design / Procure/ Construct	877	01OCT07*	31MAR11	39,021,983
Tank S-106 Startup	250	01APR11	29MAR12	2,657,664
Tank S-106 Operations / Retrieval	370	30MAR12	18SEP13	5,867,968
Tank S-107 Characterization	92	01SEP10	14JAN11	1,750,000
Tank S-107 Design / Procure/ Construct	877	01SEP10*	03MAR14	39,021,983
Tank S-107 Startup	249	04MAR14	27FEB15	2,657,664
Tank S-107 Operations / Retrieval	231	02MAR15	29JAN16	5,867,968
Tank S-108 Characterization	92	01JUL08	10NOV08	1,750,000
Tank S-108 Design / Procure/ Construct	877	01JUL08*	30DEC11	39,021,983
Tank S-108 Startup	251	03JAN12	31DEC12	2,657,664
Tank S-108 Operations / Retrieval	416	02JAN13	26AUG14	5,867,968
Tank S-109 Startup	250	04SEP12	03SEP13	2,657,664
Tank S-109 Characterization	92	02MAR09	10JUL09	1,700,000
Tank S-109 Design / Procure/ Construct	883	02MAR09*	31AUG12	39,021,983
Tank S-109 Operations / Retrieval	394	04SEP13	31MAR15	5,867,968
Tank S-110 Characterization	92	01MAR11	11JUL11	1,750,000
Tank S-110 Design / Procure/ Construct	877	01MAR11*	25AUG14	39,021,983
Tank S-110 Startup	255	26AUG14	31AUG15	2,657,664
Tank S-110 Operations / Retrieval	294	01SEP15	31OCT16	5,867,968
Tank S-112 Characterization	92	01MAR10	09JUL10	1,750,000
Tank S-112 Design / Procure/ Construct	902	01MAR10*	30SEP13	39,021,983
Tank S-112 Startup	251	01OCT13	30SEP14	2,657,664
Tank S-112 Operations / Retrieval	230	01OCT14	31AUG15	5,867,968
TX Farm				
TX Farm Project PreConceptual Design	210	11MAY07*	13MAR08	5,092,971
TX Farm Project Funding Cycle	417	02MAY11*	28DEC12	0
TX Farm Conceptual Design	481	04APR08*	05MAR10	6,090,148
TX Farm Upgrade	845	06SEP12	21JAN16	8,138,628
TX 112 Characterization	92	01JUL13	08NOV13	1,750,000
TX-112 Tank Design/Constr/Startup	746	09JAN15	28DEC17*	43,775,000



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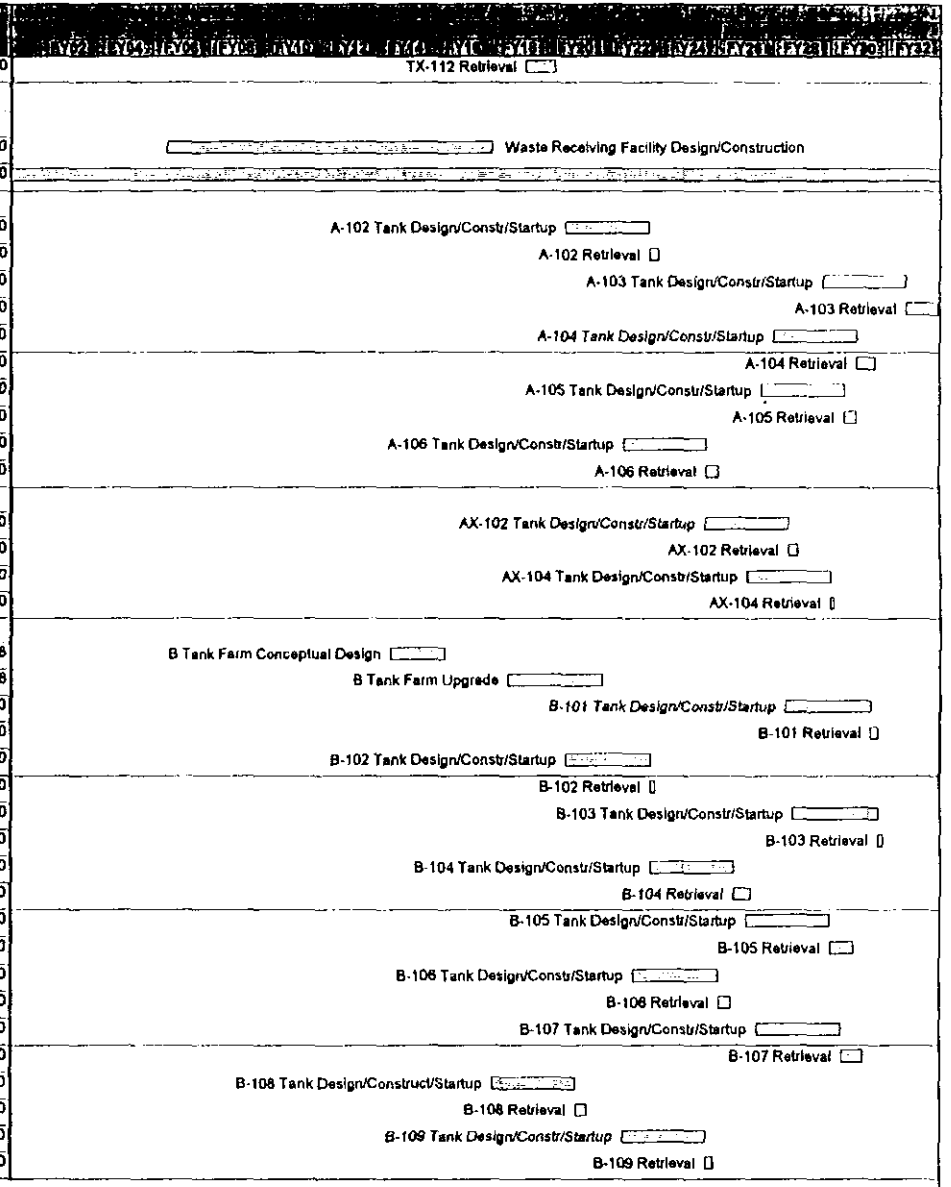
Activity Description	Orig Dur	Early Start	Early Finish	Budget Cost
TX-112 Retrieval	256	02JAN18	08JAN19	5,868,000
Other Single Shell Tanks				
Other Single Shell Tanks				
Waste Receiving Facility	2,889	01APR05*	04OCT16	313,600,000
Project Management for Other Single Shell	8,280	01OCT99	30SEP32	66,000,000
A Farm				
A-102 Tank Design/Constr/Startup	746	28MAY19	16MAY22	20,000,000
A-102 Retrieval	77	16MAY22	02SEP22	5,000,000
A-103 Tank Design/Constr/Startup	745	05JUL28	20JUN31	20,000,000
A-103 Retrieval	283	23JUN31	06AUG32	5,000,000
A-104 Tank Design/Constr/Startup	747	29SEP26	18SEP29	20,000,000
A-104 Retrieval	160	18SEP29	08MAY30	5,000,000
A-105 Tank Design/Constr/Startup	745	13APR26	30MAR29	20,000,000
A-105 Retrieval	119	02APR29	18SEP29	5,000,000
A-106 Tank Design/Constr/Startup	747	03JUN21	23MAY24	20,000,000
A-106 Retrieval	103	23MAY24	18OCT24	5,000,000
AX Farm				
AX-102 Tank Design/Constr/Startup	746	26APR24	16APR27	20,000,000
AX-102 Retrieval	78	16APR27	04AUG27	5,000,000
AX-104 Tank Design/Constr/Startup	745	27OCT25	13OCT28	20,000,000
AX-104 Retrieval	26	16OCT28	20NOV28	5,000,000
B Farm				
B Tank Farm Conceptual Design	481	29MAR13*	27FEB15	6,090,148
B Tank Farm Upgrade	840	24MAY17	26SEP20	8,138,828
B-101 Tank Design/Constr/Startup	746	17MAR27	06MAR30	20,000,000
B-101 Retrieval	71	06MAR30	13JUN30	5,000,000
B-102 Tank Design/Constr/Startup	747	03JUN19	23MAY22	20,000,000
B-102 Retrieval	44	23MAY22	26JUL22	5,000,000
B-103 Tank Design/Constr/Startup	746	24JUN27	13JUN30	20,000,000
B-103 Retrieval	52	13JUN30	27AUG30	5,000,000
B-104 Tank Design/Constr/Startup	745	23MAY22	09MAY25	20,000,000
B-104 Retrieval	152	12MAY25	17DEC25	5,000,000
B-105 Tank Design/Constr/Startup	745	27OCT25	13OCT28	20,000,000
B-105 Retrieval	195	16OCT28	25JUL29	5,000,000
B-106 Tank Design/Constr/Startup	745	01NOV21	18OCT24	20,000,000
B-106 Retrieval	114	21OCT24	04APR25	5,000,000
B-107 Tank Design/Constr/Startup	745	16MAR26	02MAR29	20,000,000
B-107 Retrieval	195	05MAR29	07DEC29	5,000,000
B-108 Tank Design/Construct/Startup	747	21OCT16	14OCT19	20,000,000
B-108 Retrieval	98	16OCT19	09MAR20	5,000,000
B-109 Tank Design/Constr/Startup	747	03JUN21	23MAY24	20,000,000
B-109 Retrieval	73	23MAY24	06SEP24	5,000,000



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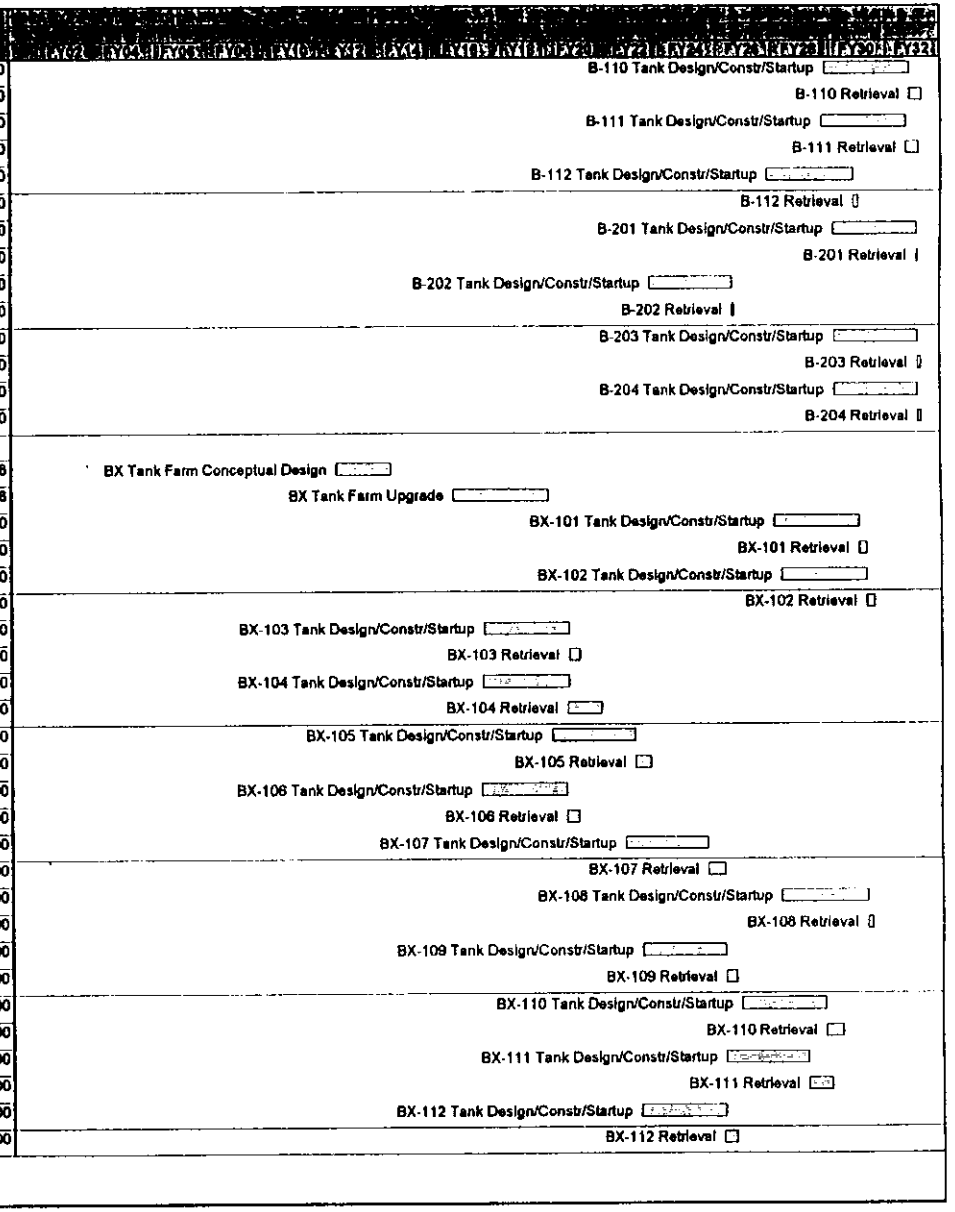
Activity	Dur	Start	Finish	Cost
B-110 Tank Design/Constr/Startup	745	07AUG28	25JUL31	20,000,000
B-110 Retrieval	109	28JUL31	02JAN32	5,000,000
B-111 Tank Design/Constr/Startup	746	30JUN28	20JUN31	20,000,000
B-111 Retrieval	109	20JUN31	24NOV31	5,000,000
B-112 Tank Design/Constr/Startup	747	05AUG26	25JUL29	20,000,000
B-112 Retrieval	47	25JUL29	28SEP29	5,000,000
B-201 Tank Design/Constr/Startup	746	17NOV28	07NOV31	20,000,000
B-201 Retrieval	13	07NOV31	25NOV31	5,000,000
B-202 Tank Design/Constr/Startup	746	06MAY22	25APR25	20,000,000
B-202 Retrieval	14	24APR25	13MAY25	5,000,000
B-203 Tank Design/Constr/Startup	748	04DEC28	24NOV31	20,000,000
B-203 Retrieval	19	24NOV31	22DEC31	5,000,000
B-204 Tank Design/Constr/Startup	748	05DEC28	25NOV31	20,000,000
B-204 Retrieval	19	25NOV31	23DEC31	5,000,000
BX Farm				
BX Tank Farm Conceptual Design	481	29APR11*	29MAR13	6,090,148
BX Tank Farm Upgrade	845	26MAY15	03OCT18	8,136,628
BX-101 Tank Design/Constr/Startup	747	09OCT26	28SEP29	20,000,000
BX-101 Retrieval	63	28SEP29	02JAN30	5,000,000
BX-102 Tank Design/Constr/Startup	746	29JAN27	18JAN30	20,000,000
BX-102 Retrieval	71	18JAN30	29APR30	5,000,000
BX-103 Tank Design/Constr/Startup	746	30JUN16	20JUN19	20,000,000
BX-103 Retrieval	94	20JUN19	01NOV19	5,000,000
BX-104 Tank Design/Constr/Startup	746	17JUN16	07JUN19	20,000,000
BX-104 Retrieval	291	07JUN19	04AUG20	5,000,000
BX-105 Tank Design/Constr/Startup	745	05NOV16	25OCT21	20,000,000
BX-105 Retrieval	140	25OCT21	16MAY22	5,000,000
BX-106 Tank Design/Constr/Startup	746	16MAY16	06MAY19	20,000,000
BX-106 Retrieval	120	06MAY19	24OCT19	5,000,000
BX-107 Tank Design/Constr/Startup	747	03JUN21	23MAY24	20,000,000
BX-107 Retrieval	143	23MAY24	17DEC24	5,000,000
BX-108 Tank Design/Constr/Startup	748	13JAN27	02JAN30	20,000,000
BX-108 Retrieval	45	02JAN30	06MAR30	5,000,000
BX-109 Tank Design/Constr/Startup	746	10JAN22	27DEC24	20,000,000
BX-109 Retrieval	96	30DEC24	14MAY25	5,000,000
BX-110 Tank Design/Constr/Startup	746	21JUL25	10JUL28	20,000,000
BX-110 Retrieval	163	10JUL28	02MAR29	5,000,000
BX-111 Tank Design/Constr/Startup	748	31DEC24	21DEC27	20,000,000
BX-111 Retrieval	206	21DEC27	13OCT28	5,000,000
BX-112 Tank Design/Constr/Startup	748	28DEC21	17DEC24	20,000,000
BX-112 Retrieval	109	17DEC24	22MAY25	5,000,000



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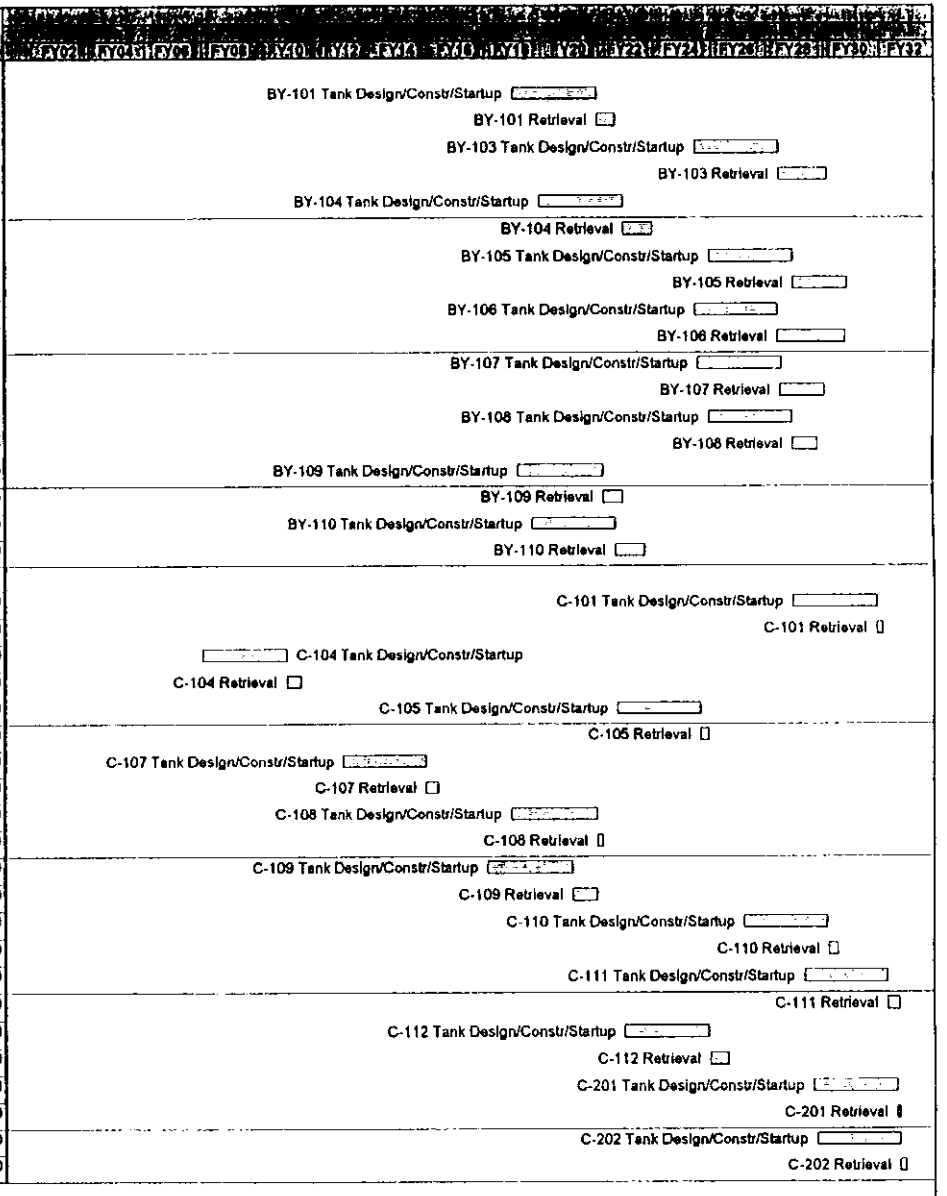
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
BY Farm				
BY-101 Tank Design/Constr/Startup	745	02OCT17	18SEP20	20,000,000
BY-101 Retrieval	172	21SEP20	26MAY21	5,000,000
BY-103 Tank Design/Constr/Startup	746	08MAR24	26FEB27	20,000,000
BY-103 Retrieval	440	26FEB27	22NOV28	5,000,000
BY-104 Tank Design/Constr/Startup	746	05SEP18	25AUG21	20,000,000
BY-104 Retrieval	262	25AUG21	09SEP22	5,000,000
BY-105 Tank Design/Constr/Startup	747	05SEP24	26AUG27	20,000,000
BY-105 Retrieval	491	26AUG27	08AUG29	5,000,000
BY-106 Tank Design/Constr/Startup	748	27FEB24	16FEB27	20,000,000
BY-106 Retrieval	611	16FEB27	19JUL29	5,000,000
BY-107 Tank Design/Constr/Startup	746	18APR24	06APR27	20,000,000
BY-107 Retrieval	395	06APR27	27OCT28	5,000,000
BY-108 Tank Design/Constr/Startup	747	05SEP24	26AUG27	20,000,000
BY-108 Retrieval	218	26AUG27	10JUL28	5,000,000
BY-109 Tank Design/Constr/Startup	746	14DEC17	03DEC20	20,000,000
BY-109 Retrieval	183	03DEC20	25AUG21	5,000,000
BY-110 Tank Design/Constr/Startup	747	06JUN18	26MAY21	20,000,000
BY-110 Retrieval	249	26MAY21	23MAY22	5,000,000
C Farm				
C-101 Tank Design/Constr/Startup	745	30AUG27	16AUG30	20,000,000
C-101 Retrieval	62	18AUG30	13NOV30	5,000,000
C-104 Tank Design/Constr/Startup	742	29SEP06	14SEP09	20,000,000
C-104 Retrieval	128	15SEP09	19MAR10	5,000,000
C-105 Tank Design/Constr/Startup	747	03JUN21	23MAY24	20,000,000
C-105 Retrieval	73	23MAY24	06SEP24	5,000,000
C-107 Tank Design/Constr/Startup	746	26SEP11	15SEP14*	20,000,000
C-107 Retrieval	109	15SEP14	20FEB15	5,000,000
C-108 Tank Design/Constr/Startup	746	25SEP17	14SEP20	20,000,000
C-108 Retrieval	57	14SEP20	03DEC20	5,000,000
C-109 Tank Design/Constr/Startup	746	10NOV16	31OCT19	20,000,000
C-109 Retrieval	218	31OCT19	14SEP20	5,000,000
C-110 Tank Design/Constr/Startup	747	04DEC25	22NOV28	20,000,000
C-110 Retrieval	86	27NOV28	30MAR29	5,000,000
C-111 Tank Design/Constr/Startup	746	24JAN28	13JAN31	20,000,000
C-111 Retrieval	113	13JAN31	20JUN31	5,000,000
C-112 Tank Design/Constr/Startup	745	20SEP21	06SEP24	20,000,000
C-112 Retrieval	169	09SEP24	09MAY25	5,000,000
C-201 Tank Design/Constr/Startup	746	18MAY28	08MAY31	20,000,000
C-201 Retrieval	31	08MAY31	20JUN31	5,000,000
C-202 Tank Design/Constr/Startup	746	30JUN28	20JUN31	0
C-202 Retrieval	57	20JUN31	11SEP31	5,000,000



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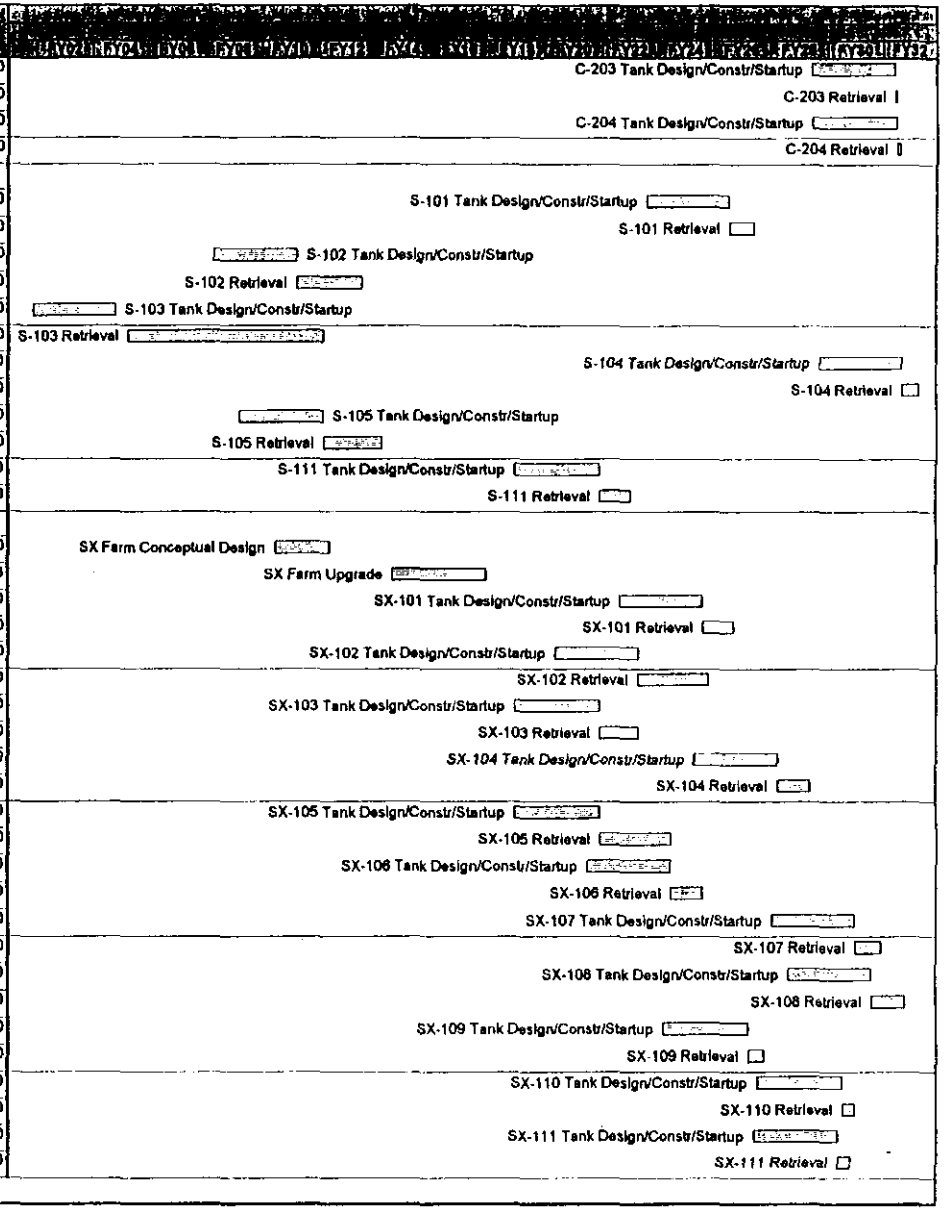
Activity Description	Orig. Dur.	Early Start	Early Finish	Budgeted Costs
C-203 Tank Design/Constr/Startup	746	20MAR28	10MAR31	20,000,000
C-203 Retrieval	6	10MAR31	17MAR31	5,000,000
C-204 Tank Design/Constr/Startup	746	27MAR28	17MAR31	20,000,000
C-204 Retrieval	39	17MAR31	08MAY31	5,000,000
S Farm				
S-101 Tank Design/Constr/Startup	745	16MAY22	02MAY25	20,000,000
S-101 Retrieval	210	05MAY25	06MAR26	5,000,000
S-102 Tank Design/Constr/Startup	746	12JAN07	31DEC09*	20,000,000
S-102 Retrieval	577	04JAN10	18APR12	5,000,000
S-103 Tank Design/Constr/Startup	1,084	08AUG00	28JUL03*	20,000,000
S-103 Retrieval	1,739	02JAN04	03DEC10	5,000,000
S-104 Tank Design/Constr/Startup	746	30JUN28	20JUN31	20,000,000
S-104 Retrieval	141	20JUN31	14JAN32	5,000,000
S-105 Tank Design/Constr/Startup	745	14DEC07	03DEC10*	20,000,000
S-105 Retrieval	523	03DEC10	04JAN13	5,000,000
S-111 Tank Design/Constr/Startup	746	25SEP17	14SEP20	20,000,000
S-111 Retrieval	281	14SEP20	25OCT21	5,000,000
SX farm				
SX Farm Conceptual Design	481	25MAR09*	23FEB11	6,090,000
SX Farm Upgrade	850	13MAY13	29SEP16	8,138,628
SX-101 Tank Design/Constr/Startup	747	03JUN21	23MAY24	20,000,000
SX-101 Retrieval	278	23MAY24	01JUL25	5,000,000
SX-102 Tank Design/Constr/Startup	753	11FEB19	09FEB22	20,000,000
SX-102 Retrieval	626	09FEB22	09AUG24	5,000,000
SX-103 Tank Design/Constr/Startup	746	25SEP17	14SEP20	20,000,000
SX-103 Retrieval	353	14SEP20	09FEB22	5,000,000
SX-104 Tank Design/Constr/Startup	745	22JAN24	08JAN27	20,000,000
SX-104 Retrieval	283	11JAN27	24FEB28	5,000,000
SX-105 Tank Design/Constr/Startup	746	25SEP17	14SEP20	20,000,000
SX-105 Retrieval	639	14SEP20	31MAR23	5,000,000
SX-106 Tank Design/Constr/Startup	745	13APR20	31MAR23	20,000,000
SX-106 Retrieval	289	03APR23	23MAY24	5,000,000
SX-107 Tank Design/Constr/Startup	746	23OCT26	11OCT29	20,000,000
SX-107 Retrieval	235	02OCT29	10SEP30	5,000,000
SX-108 Tank Design/Constr/Startup	745	24MAY27	10MAY30	20,000,000
SX-108 Retrieval	302	13MAY30	25JUL31	5,000,000
SX-109 Tank Design/Constr/Startup	748	28DEC22	17DEC25	20,000,000
SX-109 Retrieval	136	17DEC25	01JUL26	5,000,000
SX-110 Tank Design/Constr/Startup	746	30APR26	19APR29	20,000,000
SX-110 Retrieval	116	19APR29	02OCT29	5,000,000
SX-111 Tank Design/Constr/Startup	745	16MAR26	02MAR29	20,000,000
SX-111 Retrieval	103	05MAR29	27JUL29	5,000,000



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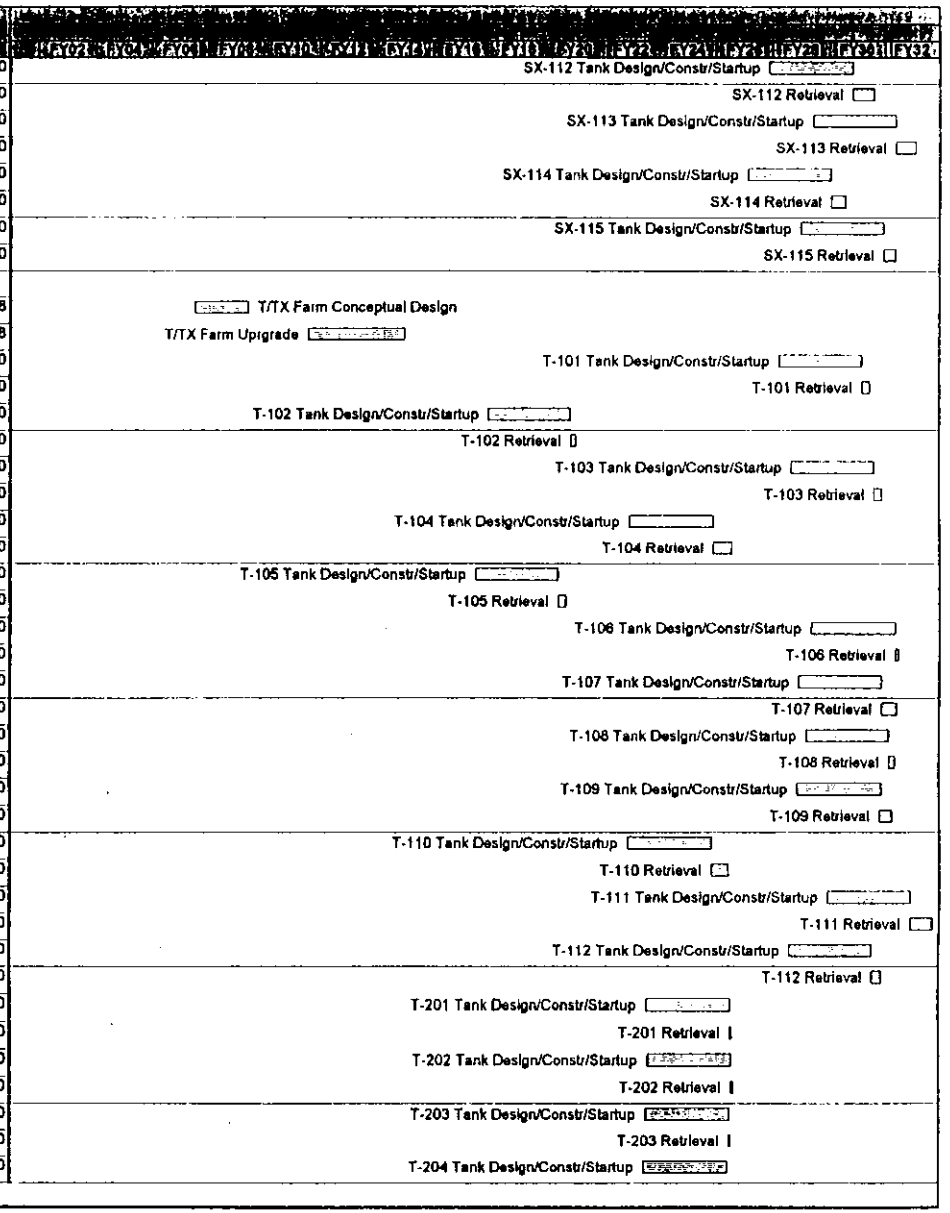
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
SX-112 Tank Design/Constr/Startup	746	10AUG26	27JUL29	20,000,000
SX-112 Retrieval	197	30JUL29	10MAY30	5,000,000
SX-113 Tank Design/Constr/Startup	746	28FEB28	14FEB31	20,000,000
SX-113 Retrieval	185	18FEB31	07NOV31	5,000,000
SX-114 Tank Design/Constr/Startup	745	10NOV25	27OCT28	20,000,000
SX-114 Retrieval	118	30OCT28	19APR29	5,000,000
SX-115 Tank Design/Constr/Startup	746	21SEP27	10SEP30	20,000,000
SX-115 Retrieval	109	10SEP30	14FEB31	5,000,000
T Farm				
T/TX Farm Conceptual Design	481	03APR06*	03MAR08	6,090,148
T/TX Farm Upgrade	853	23APR10	16SEP13	8,138,628
T-101 Tank Design/Constr/Startup	746	21DEC28	07DEC29	20,000,000
T-101 Retrieval	61	10DEC29	11MAR30	5,000,000
T-102 Tank Design/Constr/Startup	746	29AUG18	19AUG19	20,000,000
T-102 Retrieval	42	19AUG19	16OCT19	5,000,000
T-103 Tank Design/Constr/Startup	746	19MAY27	08MAY30	20,000,000
T-103 Retrieval	64	08MAY30	08AUG30	5,000,000
T-104 Tank Design/Constr/Startup	746	17SEP21	06SEP24	20,000,000
T-104 Retrieval	164	06SEP24	01MAY25	5,000,000
T-105 Tank Design/Constr/Startup	746	17MAR16	07MAR19	20,000,000
T-105 Retrieval	66	07MAR19	07JUN19	5,000,000
T-106 Tank Design/Constr/Startup	746	18FEB28	07FEB31	20,000,000
T-106 Retrieval	40	07FEB31	04APR31	5,000,000
T-107 Tank Design/Constr/Startup	747	07SEP27	27AUG30	20,000,000
T-107 Retrieval	133	27AUG30	10MAR31	5,000,000
T-108 Tank Design/Constr/Startup	745	13DEC27	27NOV30	20,000,000
T-108 Retrieval	47	02DEC30	07FEB31	5,000,000
T-109 Tank Design/Constr/Startup	746	19AUG27	08AUG30	20,000,000
T-109 Retrieval	107	08AUG30	13JAN31	5,000,000
T-110 Tank Design/Constr/Startup	745	23AUG21	09AUG24	20,000,000
T-110 Retrieval	153	12AUG24	21MAR25	5,000,000
T-111 Tank Design/Constr/Startup	746	21SEP28	11SEP31	20,000,000
T-111 Retrieval	187	11SEP31	08JUN32	5,000,000
T-112 Tank Design/Constr/Startup	746	10MAY27	29APR30	20,000,000
T-112 Retrieval	77	29APR30	16AUG30	5,000,000
T-201 Tank Design/Constr/Startup	746	26APR22	15APR25	20,000,000
T-201 Retrieval	14	15APR25	02MAY25	5,000,000
T-202 Tank Design/Constr/Startup	746	12MAY22	01MAY25	20,000,000
T-202 Retrieval	12	01MAY25	16MAY25	5,000,000
T-203 Tank Design/Constr/Startup	746	15APR22	04APR25	20,000,000
T-203 Retrieval	16	04APR25	25APR25	5,000,000
T-204 Tank Design/Constr/Startup	745	04APR22	21MAR25	20,000,000



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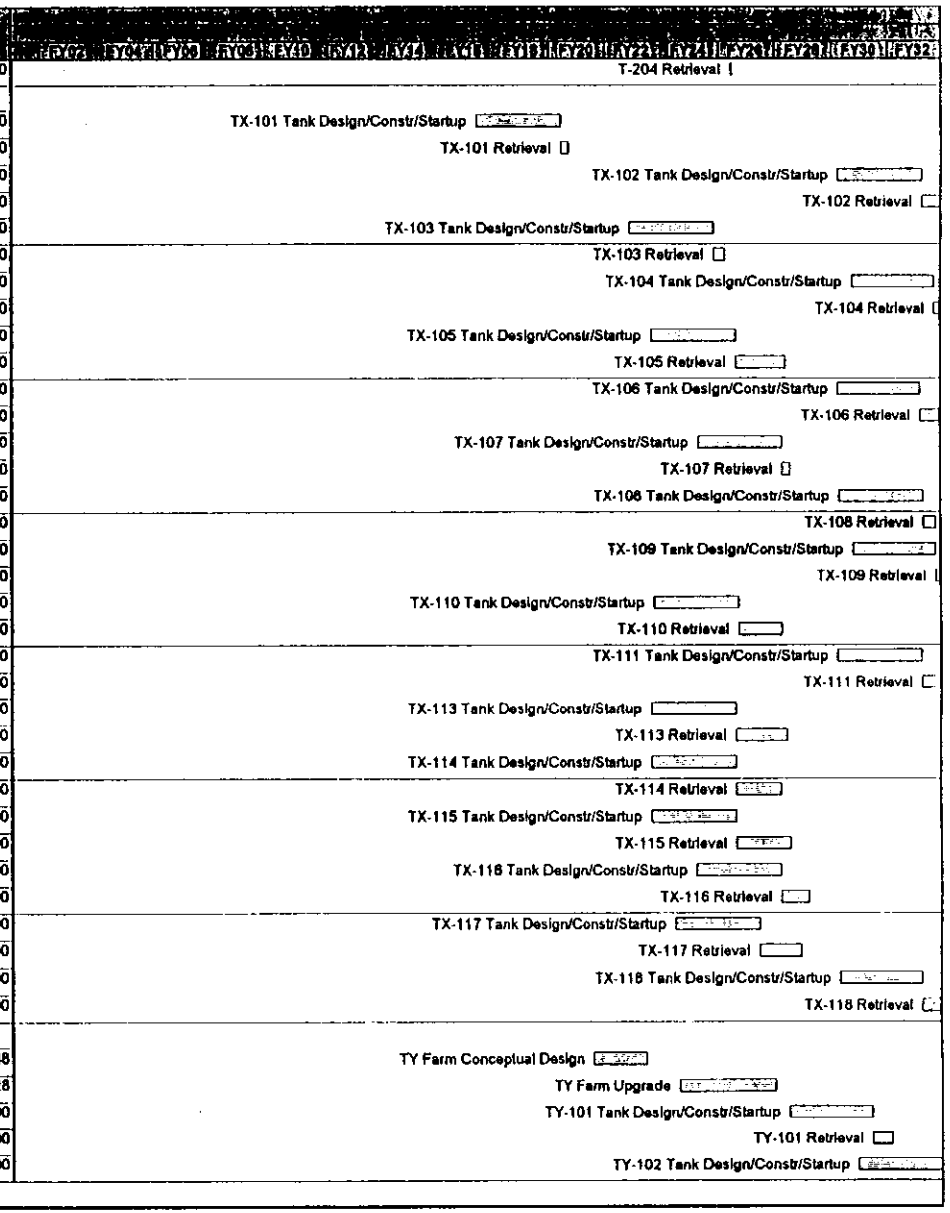
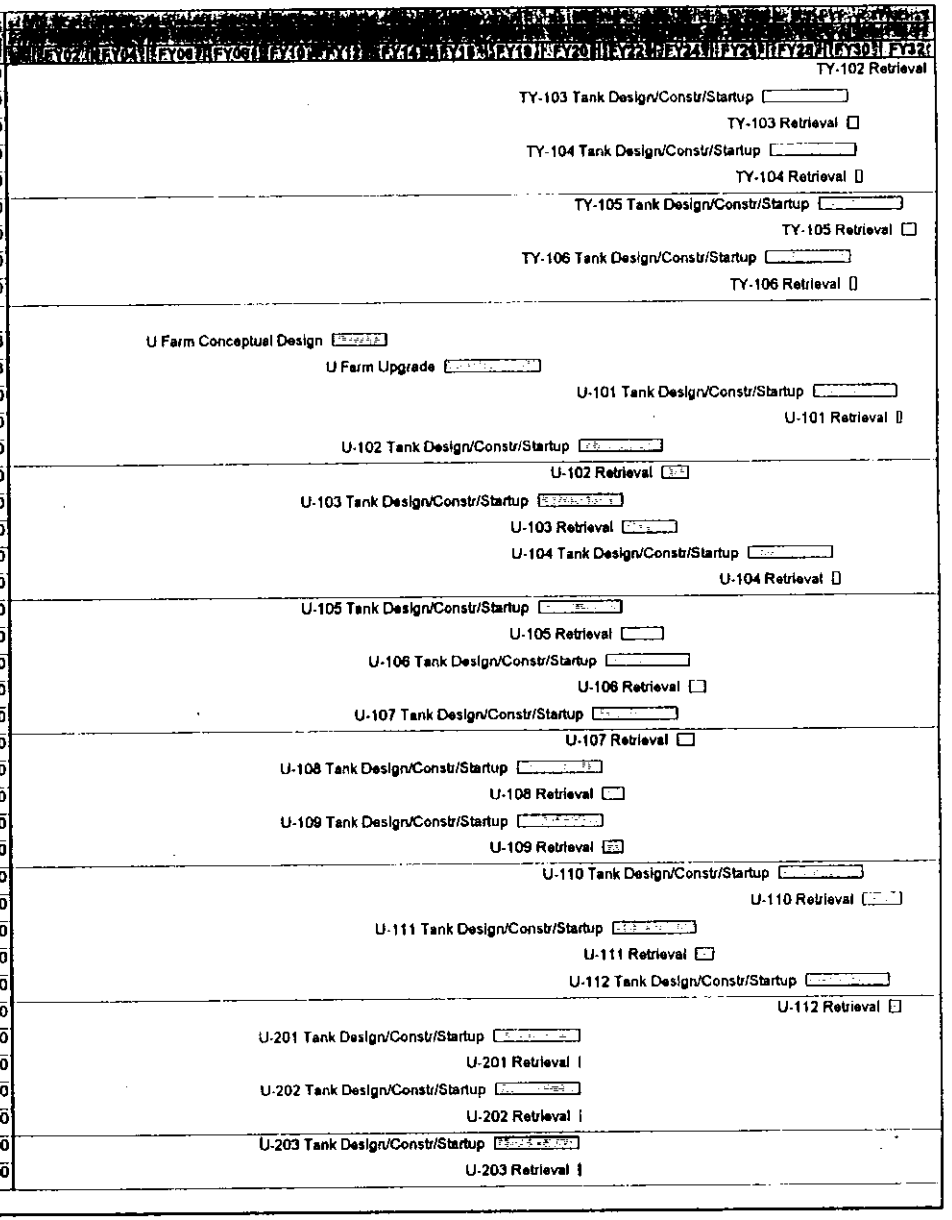
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
T-204 Retrieval	17	24MAR25	15APR25	5,000,000
TX Farm				
TX-101 Tank Design/Constr/Startup	748	10MAR18	28FEB19	20,000,000
TX-101 Retrieval	75	07MAR19	20JUN19	5,000,000
TX-102 Tank Design/Constr/Startup	749	02JAN29	23DEC31	20,000,000
TX-102 Retrieval	178	23DEC31	07SEP32	5,000,000
TX-103 Tank Design/Constr/Startup	745	23AUG21	09AUG24	20,000,000
TX-103 Retrieval	95	12AUG24	27DEC24	5,000,000
TX-104 Tank Design/Constr/Startup	746	19JUN29	08JUN32	20,000,000
TX-104 Retrieval	71	08JUN32	17SEP32	5,000,000
TX-105 Tank Design/Constr/Startup	746	24MAY22	13MAY25	20,000,000
TX-105 Retrieval	441	13MAY25	16FEB27	5,000,000
TX-106 Tank Design/Constr/Startup	746	22DEC28	12DEC31	20,000,000
TX-106 Retrieval	276	12DEC31	19JAN33	5,000,000
TX-107 Tank Design/Constr/Startup	745	22JAN24	08JAN27	20,000,000
TX-107 Retrieval	69	11JAN27	16APR27	5,000,000
TX-108 Tank Design/Constr/Startup	746	24JAN29	14JAN32	20,000,000
TX-108 Retrieval	114	14JAN32	23JUN32	5,000,000
TX-109 Tank Design/Constr/Startup	746	05JUL29	23JUN32	20,000,000
TX-109 Retrieval	213	23JUN32	28APR33	5,000,000
TX-110 Tank Design/Constr/Startup	748	12JUL22	01JUL25	20,000,000
TX-110 Retrieval	381	01JUL25	08JAN27	5,000,000
TX-111 Tank Design/Constr/Startup	748	02JAN29	22DEC31	20,000,000
TX-111 Retrieval	218	22DEC31	01NOV32	5,000,000
TX-113 Tank Design/Constr/Startup	747	02JUN22	22MAY25	20,000,000
TX-113 Retrieval	442	22MAY25	26FEB27	5,000,000
TX-114 Tank Design/Constr/Startup	746	27MAY22	16MAY25	20,000,000
TX-114 Retrieval	395	16MAY25	11DEC26	5,000,000
TX-115 Tank Design/Constr/Startup	746	25MAY22	14MAY25	20,000,000
TX-115 Retrieval	475	14MAY25	06APR27	5,000,000
TX-116 Tank Design/Constr/Startup	745	27DEC23	11DEC26	20,000,000
TX-116 Retrieval	257	14DEC26	21DEC27	5,000,000
TX-117 Tank Design/Constr/Startup	745	20MAR23	06MAR26	20,000,000
TX-117 Retrieval	371	09MAR26	26AUG27	5,000,000
TX-118 Tank Design/Constr/Startup	745	15JAN29	02JAN32	20,000,000
TX-118 Retrieval	217	05JAN32	09NOV32	5,000,000
TY Farm				
TY Farm Conceptual Design	481	28APR20*	30MAR22	6,090,148
TY Farm Upgrade	843	19MAY23	28SEP26	8,138,628
TY-101 Tank Design/Constr/Startup	746	22MAR27	11MAR30	20,000,000
TY-101 Retrieval	184	11MAR30	27NOV30	5,000,000
TY-102 Tank Design/Constr/Startup	745	18SEP29	07SEP32	20,000,000



Sheet 8A of 10B

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
TY-102 Retrieval	70	07SEP32	15DEC32	5,000,000
TY-103 Tank Design/Constr/Startup	747	30JUL26	19JUL29	20,000,000
TY-103 Retrieval	99	19JUL29	07DEC29	5,000,000
TY-104 Tank Design/Constr/Startup	747	26OCT26	17OCT29	20,000,000
TY-104 Retrieval	62	17OCT29	18JAN30	5,000,000
TY-105 Tank Design/Constr/Startup	746	30JUN26	20JUN31	20,000,000
TY-105 Retrieval	121	20JUN31	12DEC31	5,000,000
TY-106 Tank Design/Constr/Startup	747	19AUG26	08AUG29	20,000,000
TY-106 Retrieval	50	08AUG29	17OCT29	5,000,000
U Farm				
U Farm Conceptual Design	481	31MAR11*	28FEB13	6,090,146
U Farm Upgrade	843	27MAR15	02AUG18	8,138,628
U-101 Tank Design/Constr/Startup	745	03APR28	21MAR31	20,000,000
U-101 Retrieval	45	24MAR31	23MAY31	5,000,000
U-102 Tank Design/Constr/Startup	746	17DEC19	06DEC22	20,000,000
U-102 Retrieval	234	06DEC22	08NOV23	5,000,000
U-103 Tank Design/Constr/Startup	746	28JUN18	17JUN21	20,000,000
U-103 Retrieval	483	17JUN21	19MAY23	5,000,000
U-104 Tank Design/Constr/Startup	748	01DEC25	20NOV28	20,000,000
U-104 Retrieval	69	20NOV28	02MAR29	5,000,000
U-105 Tank Design/Constr/Startup	746	20JUN18	09JUN21	20,000,000
U-105 Retrieval	375	09JUN21	06DEC22	5,000,000
U-106 Tank Design/Constr/Startup	748	18NOV20	08NOV23	20,000,000
U-106 Retrieval	132	08NOV23	17MAY24	5,000,000
U-107 Tank Design/Constr/Startup	746	01JUN20	19MAY23	20,000,000
U-107 Retrieval	159	22MAY23	10JAN24	5,000,000
U-108 Tank Design/Constr/Startup	746	25SEP17	14SEP20	20,000,000
U-108 Retrieval	192	14SEP20	17JUN21	5,000,000
U-109 Tank Design/Constr/Startup	748	25SEP17	14SEP20	20,000,000
U-109 Retrieval	186	14SEP20	09JUN21	5,000,000
U-110 Tank Design/Constr/Startup	746	21DEC26	07DEC29	20,000,000
U-110 Retrieval	338	10DEC29	16APR31	5,000,000
U-111 Tank Design/Constr/Startup	746	20JAN21	10JAN24	20,000,000
U-111 Retrieval	149	10JAN24	09AUG24	5,000,000
U-112 Tank Design/Constr/Startup	746	24NOV27	13NOV30	20,000,000
U-112 Retrieval	87	13NOV30	21MAR31	5,000,000
U-201 Tank Design/Constr/Startup	746	09NOV16	30OCT19	20,000,000
U-201 Retrieval	6	30OCT19	06NOV19	5,000,000
U-202 Tank Design/Constr/Startup	745	14NOV16	01NOV19	20,000,000
U-202 Retrieval	5	04NOV19	08NOV19	5,000,000
U-203 Tank Design/Constr/Startup	746	03NOV16	24OCT19	20,000,000
U-203 Retrieval	5	24OCT19	30OCT19	5,000,000



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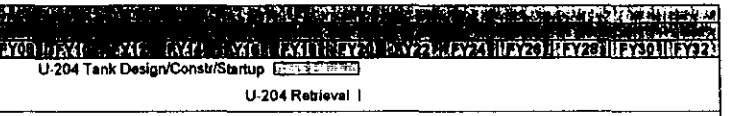
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
U-204 Tank Design/Const/Startup	746	16NOV16	06NOV19	20,000,000
U-204 Retrieval	5	08NOV19	12NOV19	5,000,000



Sheet 10A of 10B

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APPENDIX C

TANK FARM CLOSURE AND CORRECTIVE MEASURES AND TANK FARM VADOSE ZONE TECHNICAL BASELINE

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APPENDIX C
TANK FARM CLOSURE AND CORRECTIVE MEASURES AND TANK FARM VADOSE ZONE TECHNICAL BASELINE

C1.0 INTRODUCTION

This appendix provides an overview of the project logic, a Work Breakdown Structure, and budgeted cost data for two Single-Shell Tank (SST) Program organizational subelements: (1) Tank Farm Closure and Corrective Measures and (2) Tank Farm Vadose Zone. Activities carried out under these two subelements will support both near- and long-term tank farm decisions, including SST corrective measures, SST waste retrieval, and tank farm closure. These activities will also provide support for site-level assessments and decisions made by the Groundwater/Vadose Zone Integration Project. The two subelements discussed in this appendix have the primary responsibility for (1) collecting and providing information and understanding on the distribution and movement of contaminants in the vadose zone in and around the tank farms, (2) meeting proposed Tri-Party Agreement[5] milestones for corrective actions at SST waste management areas (WMAs), and (3) planning and implementing tank farm closure and post-closure care activities.

C2.0 SCOPE, SCHEDULE, BUDGET

Printouts of the information for the logic, work breakdown, and schedule and cost activities are attached. A summary description of the scope of each of these activities is provided in the following subsections.

[5] Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

The Work Breakdown Structure depicts the scope of work performed by the Tank Farm Closure and Corrective Measures and Tank Farm Vadose Zone subelements. The Work Breakdown Structure is organized into the following three upper-level (Level 6) activities:

- Closure/Vadose Zone Project Management
- Closure System Definition
- Vadose Zone Activities.

C2.1 Closure/Vadose Zone Project Management

The scope of the Closure/Vadose Zone Project management activity consists of program management, business management, and contract management. Program management is required to provide technical direction for the program and provide management for meeting cost and schedule commitments. Program management includes overall management, project control, and reporting for activities listed below:

- Closure/Vadose Zone Program management
- Closure system definition
- Vadose zone activities
- SST/miscellaneous underground storage tank (MUST) closure
- Double-shell tank (DST) closure
- Post-closure monitoring.

C2.2 Closure System Definition

The scope of the Closure system definition activity consists of planning for and

implementation of SST, MUST, and DST closure and post-closure care. Closure planning will include the following activities:

- Revise closure work plan
- Prepare closure plan
- Identify and demonstrate closure alternatives including technology selection
- Develop top-level design specification
- Perform systems engineering and prepare tank farm performance assessment
- Determine waste classification
- Prepare closure environmental impact statement.

Upon completion of waste retrieval activities, SST and DST farms will be closed in accordance with the decisions and specifications developed through the closure planning process. Implementation of closure decisions will include the following activities:

- Perform component-level systems engineering and detail design
- Select and qualify closure materials
- Perform detail design of closure methods for tank farms, individual tanks, and surface and subsurface soils
- Conduct design reviews and requirements verification
- Coordinate technical interface with the Washington State Department of Ecology and U.S. Environmental Protection Agency
- Develop procurement specifications and procure closure material and equipment
- Construct closure systems in accordance with detail design
- Remove, dismantle, demolish, decontaminate, and otherwise dispose of ancillary equipment, piping, valves, and other material and equipment within the tank farm boundaries
- Inspect and test closures
- Perform readiness reviews and tank farms turnover for post-closure monitoring.

Post-closure care will begin after closure activities at each tank farm are completed and will continue for 30 years. Post-closure care will include the following activities:

- Perform groundwater monitoring and reporting
- Maintain waste containment system
- Implement security requirements to prevent disturbance of final cover and monitoring system integrity.

C2.3 Vadose Zone

The scope of the vadose zone activity comprises the following three major components:

- Support to vadose zone investigations
- WMA corrective action investigation
- WMA corrective action implementation.

Each component is discussed individually in the following subsections. A logic diagram depicting the relationships among these components is attached.

C2.3.1 Support to Vadose Zone Activities

The scope of the support to vadose zone component involves the following group of activities that are needed to support tank farm vadose zone investigations and implementation of the Resource

Conservation and Recovery Act[6] (RCRA) Corrective Action process at SST WMAs:

- External peer review
- Supporting technical analyses
- Supporting technology assessments
- Phase I RCRA facility investigation/corrective measures study (RFI/CMS) work plan development
- Phase I RFI report development
- RCRA well maintenance
- Drywell logging.

Completion of the Phase I RFI/CMS work plan and RFI report will ensure compliance with proposed Tri-Party Agreement[6] Milestones M-45-51 and M-45-55 as established in Change Number M-45-98-03. The Phase I RFI/CMS work plan will provide the overall framework within which the site-specific SST WMA RFI/CMS work plan addenda will be prepared. The scope of the Phase I RFI/CMS work plan initially will include only the four WMAs currently in RCRA assessment. When the remaining three WMAs are placed in RCRA assessment, the work plan will be updated to include these three WMAs.

Upon completion of each site-specific investigation information, analyses, and recommendations for interim measures will be documented in a field investigation report (see Section C2.3.2). Following completion of all work as outlined in the Phase I RFI/CMS Work Plan, a Phase I RFI Report summarizing the site-specific field investigation reports will be prepared. The Phase I RFI report will provide conclusions and recommendations for further investigation (Phase II RFI activities) and/or initiation of a CMS. Should the Phase I RFI report indicate the need for additional field investigation, the overall RFI/CMS work plan will be updated to address the Phase II work scope.

Results of the supporting technical analyses, supporting technology assessments, and drywell logging will be used to support the development of WMA-specific RFI/CMS work plan addenda and subsequent field investigation reports (Section C2.3.2). RCRA well maintenance activities satisfy River Protection Project requirements to maintain a RCRA-compliant monitoring well network around SST farms.

C2.3.2 Waste Management Area Corrective Action Investigation

The scope of the WMA action investigation component involves performing corrective action investigations (RFI/CMSs) as required under State Dangerous Waste Regulations[7] at the SST WMAs. Four of the seven SST WMAs are currently in RCRA assessment (S-SX, B-BX-BY, T, and TX-TY) and are included in proposed corrective action commitments established in Tri-Party Agreement[6] Change Number M-45-98-03 (Ecology et al. 1999). For planning purposes, it is assumed that the remaining three SST WMAs (U, A-AX, and C) eventually also be placed in RCRA assessment and made subject to corrective action requirements.

Preparation of the required corrective action documentation will involve performing the following major actions at each SST WMA:

- Complete a Phase I RFI/CMS work plan addendum (proposed Milestones M-45-52, M-45-53, M-45-54[6])

[6] *Resource Conservation and Recovery Act of 1976*, Public Law 94-580, Stat. 2795, Title 42.

[7] WAC-173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

- Collect and analyze data needed to determine the nature and extent of past leak contamination and the potential for contaminants to migrate to groundwater
- Complete a field investigation report (proposed Target Milestones M-45-55-T01, M-45-55-T02, M-45-55-T03[6]) that will include a screening-level assessment of potential human health and environmental risks.

WMA-specific work plan addenda will be developed based on the overall work plan (Phase I RFI/CMS Work Plan), WMA-specific data quality objectives, and WMA-specific collection and analysis of historical data. Following the completion of the work plan addenda, data collection activities will be initiated and completed. Data collection activities are likely to include one or more intrusive soil and/or groundwater sampling campaigns (e.g., drilling of boreholes to support collection of soil or groundwater samples). Soil and/or groundwater samples will be analyzed by a qualified laboratory to determine the nature of contaminants present in soils or groundwater.

Following the completion of all data collection and analysis activities as well as supporting analyses (Section C2.3.1), a site-specific field investigation report will be prepared for each SST WMA. This report will detail the nature and extent of contaminants in soils and groundwater resulting from past releases within the WMA, assess the potential for those contaminants to migrate to groundwater and/or any other pathway that could result in a potential pathway of exposure for human or ecological receptors, and report a screening level assessment of potential human health and environmental risks associated with past releases. The report will be used to determine whether interim corrective measures are required and to support the development of the RFI report (Section C2.3.1).

C2.3.3 Waste Management Area Corrective Action Implementation

The scope of the WMA corrective action implementation component involves implementing near-term interim measures and, if necessary, long-term corrective measures for mitigating the migration of existing vadose zone contamination beneath the SST WMAs. Interim measures are the initial, relatively inexpensive response actions agreed to with the Washington State Department of Ecology pursuant to the SST WMA corrective action requirements (proposed Milestone M-45-56[6]). Interim measures are corrective actions that do not require vadose zone data to implement and therefore can be implemented in the near term prior to or concurrent with the development of corrective action documentation (i.e., Phase I RFI/CMS work plan, WMA-specific Phase I RFI/CMS work plan addenda, WMA-specific field investigation reports, and Phase I RFI Report). Decisions on near-term interim measures are being finalized through an engineering study and will include isolating leaking water lines, decommissioning unfit wells, controlling surface drainage, and testing and evaluating surface barrier concepts.

Following the completion of Phase I RFI field activities, requirements for additional interim measures could be established if the site-specific field investigation reports (Section C2.3.2) indicate a need to mitigate an imminent threat to human health or the environment.

Following completion of all work as outlined in the Phase I RFI/CMS work plan, a Phase I RFI report summarizing the site-specific field investigation reports will be prepared. The Phase I RFI report (Section C2.3.1) will provide conclusions and recommendations for further investigation (Phase II RFI activities) and/or initiation of a CMS. If required, a CMS would be prepared (proposed Milestone M-45-58[6]). Based on the outcome of CMS, requirements for implementing more expensive long-term corrective measures (e.g., interim surface barriers) could be established (proposed Milestone M-45-59[6]).

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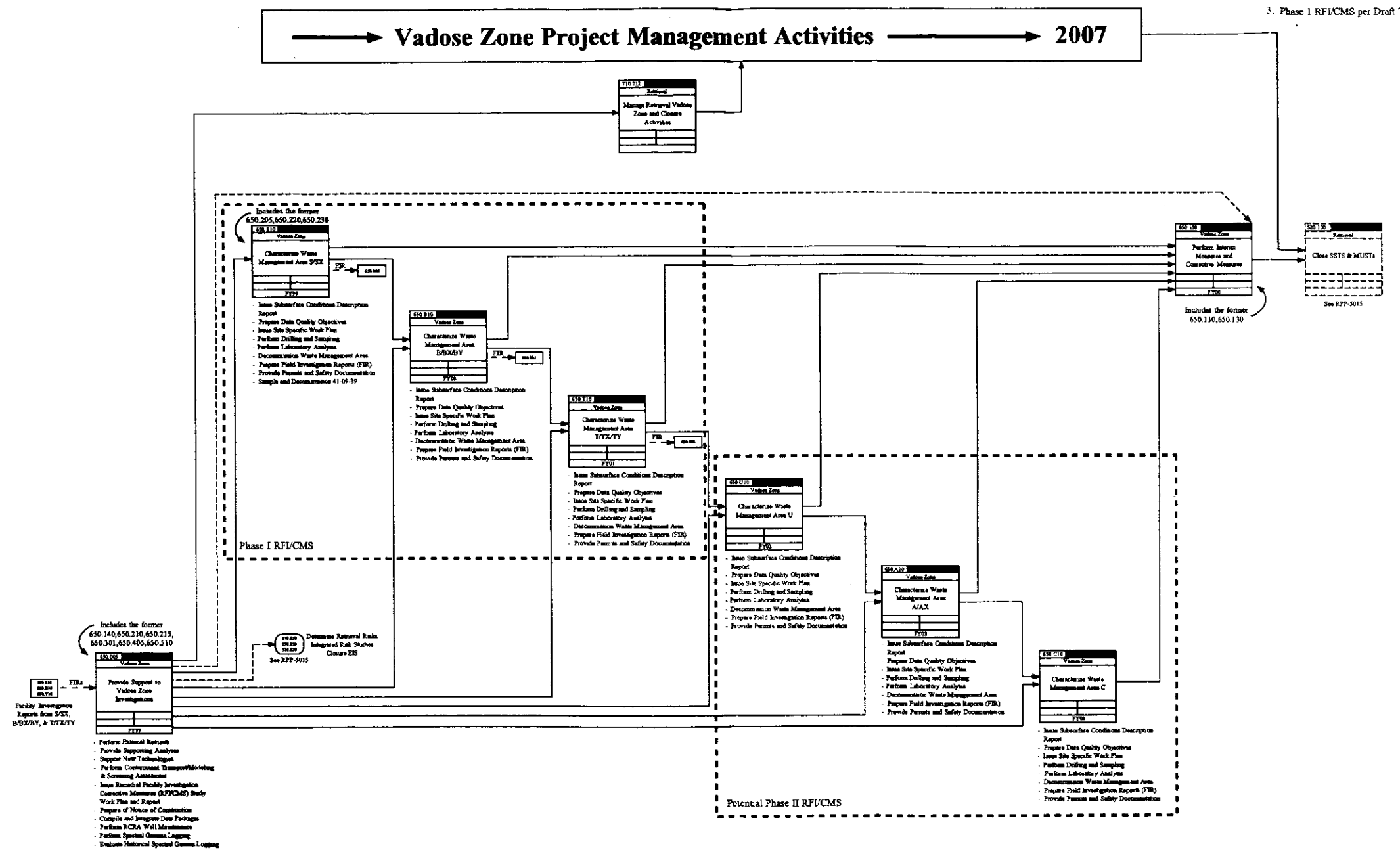
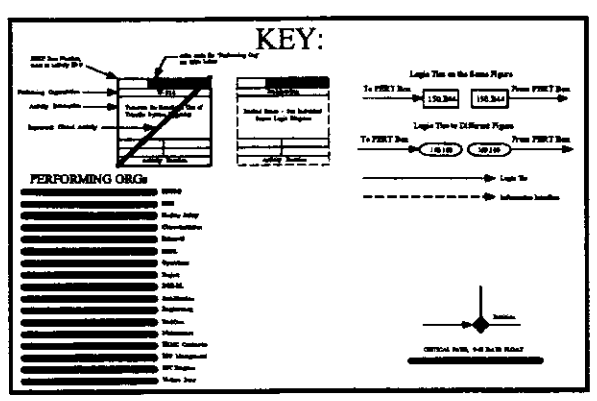
Vadose Zone Project Activities

NOTES:

1. RCRA - Resource Conservation Recovery Act
   RFI/CMS - RCRA Facility Investigation/Corrective Measures Study
   SST - Single Shell Tank
2. See TWR-3987 for Safe Storage A/AX Farm Activities
   See TWR-3992 for Safe Storage B/BX/BY Farm Activities
   See TWR-3993 for Safe Storage C Farm Activities
   See TWR-3994 for Safe Storage S/SX Farm Activities
   See TWR-3996 for Safe Storage T/TX/TY Farm Activities
   See TWR-3997 for Safe Storage U Farm Activities
3. Phase 1 RFI/CMS per Draft TPA Change M-45-98-03





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U.S. DEPARTMENT OF ENERGY
Office of River Protection (ORP)
LOCKHEED MARTIN HANFORD CORPORATION

Vadose Zone Project Activities

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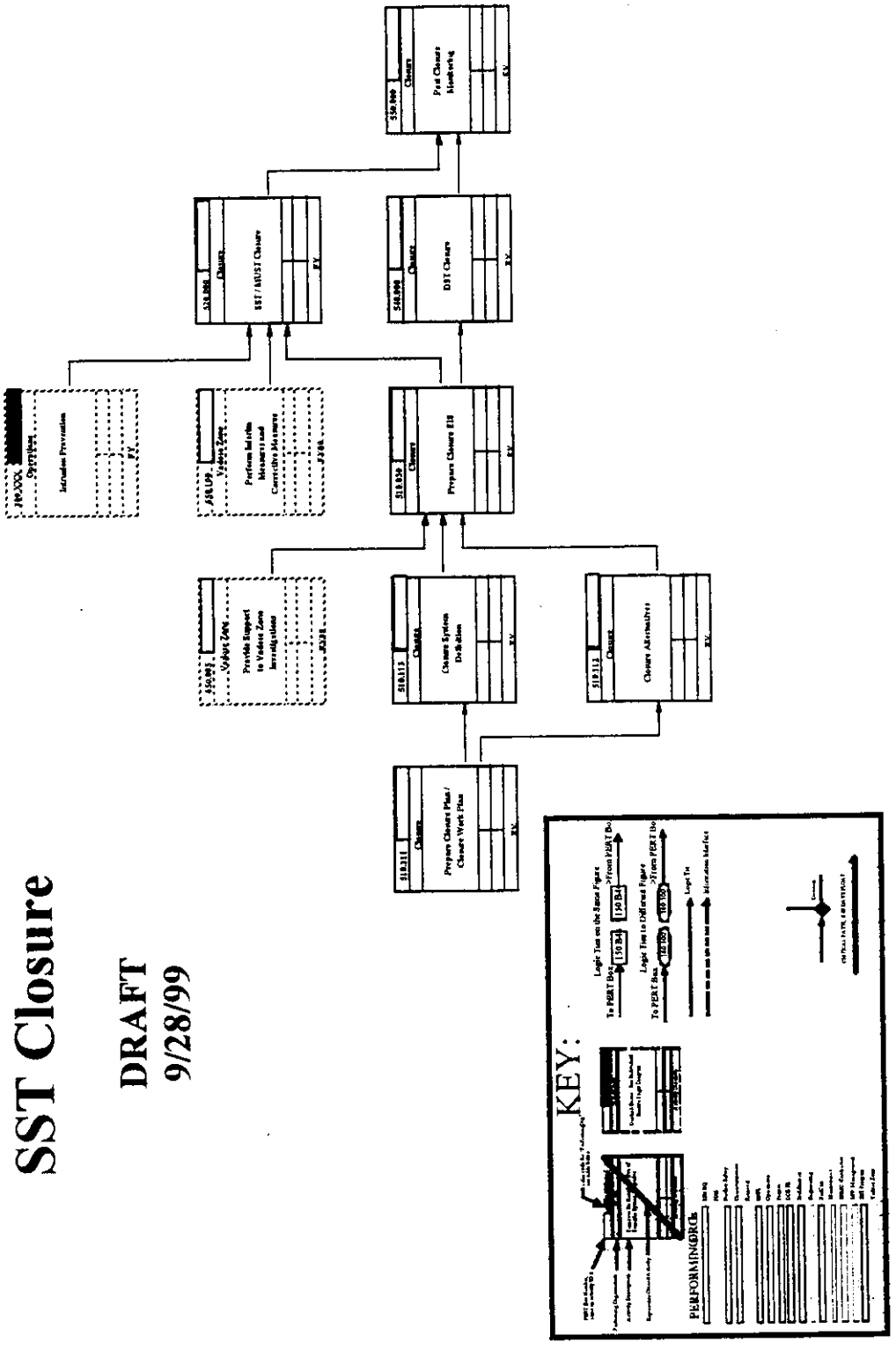
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PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.03	D&D Tank Farm Facility				
				TW04.01.03.01	Closure and Vadose Zone Project Management	TW04.01.03.01.01	Manage Closure/Vadose Zone
						TW04.01.03.01.01.01	Project Management
						TW04.01.03.01.01.02	Project Management Plan
				TW04.01.03.02	Closure System Definition		
				TW04.01.03.03	Vadose Zone Activities	TW04.01.03.03.18	Support to Vadose Zone Investigations
						TW04.01.03.03.18.01	External Reviews
						TW04.01.03.03.18.02	Supporting Analyses
						TW04.01.03.03.18.03	Supporting Technologies
						TW04.01.03.03.18.04	RFI/CMS Work Plan and RFI Report
						TW04.01.03.03.18.05	RCRA Well Maintenance
						TW04.01.03.03.18.06	Spectral Gamma Logging
						TW04.01.03.03.18.07	Support to Spectral
						TW04.01.03.03.18.08	Historical Gamma Logging Evaluation
						TW04.01.03.03.19	Waste Management Area S-SX
						TW04.01.03.03.19.01	Subsurface Conditions Description Report
						TW04.01.03.03.19.02	Data Quality Objectives
						TW04.01.03.03.19.03	Site Specific Work Plan
						TW04.01.03.03.19.04	Drilling and Sampling
						TW04.01.03.03.19.05	Laboratory Analysis
						TW04.01.03.03.19.06	Field Investigation Reports
						TW04.01.03.03.19.07	Permitting and Safety
						TW04.01.03.03.19.08	Decommissioning and Sampling 41-09-39

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.03	D&D Tank Farm Facility				
				TW04.01.03.03 (Cont'd)	Vadose Zone Activities	TW04.01.03.03.20	Waste management Area B-BX-BY
						TW04.01.03.03.20.01	Subsurface Conditions Description Report
						TW04.01.03.03.20.02	Data Quality Objectives
						TW04.01.03.03.20.03	Site Specific Work Plan
						TW04.01.03.03.20.04	Drilling and Sampling
						TW04.01.03.03.20.05	Laboratory Analysis
						TW04.01.03.03.20.06	Field Investigation Reports
						TW04.01.03.03.20.07	Permitting and Safety
						TW04.01.03.03.21	Waste Management Area T-TX-TY
						TW04.01.03.03.21.01	Subsurface Conditions Description Report
						TW04.01.03.03.21.02	Data Quality Objectives
						TW04.01.03.03.21.03	Site Specific Work Plan
						TW04.01.03.03.21.04	Drilling and Sampling
						TW04.01.03.03.21.05	Laboratory Analysis
						TW04.01.03.03.21.06	Field Investigation Reports
						TW04.01.03.03.21.07	Permitting and Safety
						TW04.01.03.03.22	Waste Management Area U
						TW04.01.03.03.22.01	Subsurface Conditions Description Report
						TW04.01.03.03.22.02	Data Quality Objectives
						TW04.01.03.03.22.03	Site Specific Work Plan
						TW04.01.03.03.22.04	Drilling and Sampling
						TW04.01.03.03.22.05	Laboratory Analysis

PBS #	PBS Description	Activity #	Activity Description	Work Scope #	Work Scope Description	Work Package #	Work Package Description
TW04	Waste Retrieval	TW04.01.03	D&D Tank Farm Facility				
				TW04.01.03.03 (Cont'd)	Vadose Zone Activities	TW04.01.03.03.22.06	Field Investigation Reports
						TW04.01.03.03.22.07	Permitting and Safety
						TW04.01.03.03.23	Waste Management Area A-AX
						TW04.01.03.03.23.01	Subsurface Conditions Description Report
						TW04.01.03.03.23.02	Data Quality Objectives
						TW04.01.03.03.23.03	Site Specific Work Plan
						TW04.01.03.03.23.04	Drilling and Sampling
						TW04.01.03.03.23.05	Laboratory Analysis
						TW04.01.03.03.23.06	Field Investigation Reports
						TW04.01.03.03.23.07	Permitting and Safety
						TW04.01.03.03.24	Waste Management Area C
						TW04.01.03.03.24.01	Subsurface Conditions Description Report
						TW04.01.03.03.24.02	Data Quality Objectives
						TW04.01.03.03.24.03	Site Specific Work Plan
						TW04.01.03.03.24.04	Drilling and Sampling
						TW04.01.03.03.24.05	Laboratory Analysis
						TW04.01.03.03.24.06	Field Investigation Reports
						TW04.01.03.03.24.07	Permitting and Safety
						TW04.01.03.03.25	Interim Measures and Corrective Measures
						TW04.01.03.03.25.01	Engineering Study
						TW04.01.03.03.25.02	Implement Interim Measures
						TW04.01.03.03.25.03	Corrective Measures

CMS = corrective measures study
D&D = decontamination and decommissioning
PBS = Project Baseline Summary
RCRA = *Resource Conservation and Recovery Act of 1976*
RFI = RCRA facility investigation

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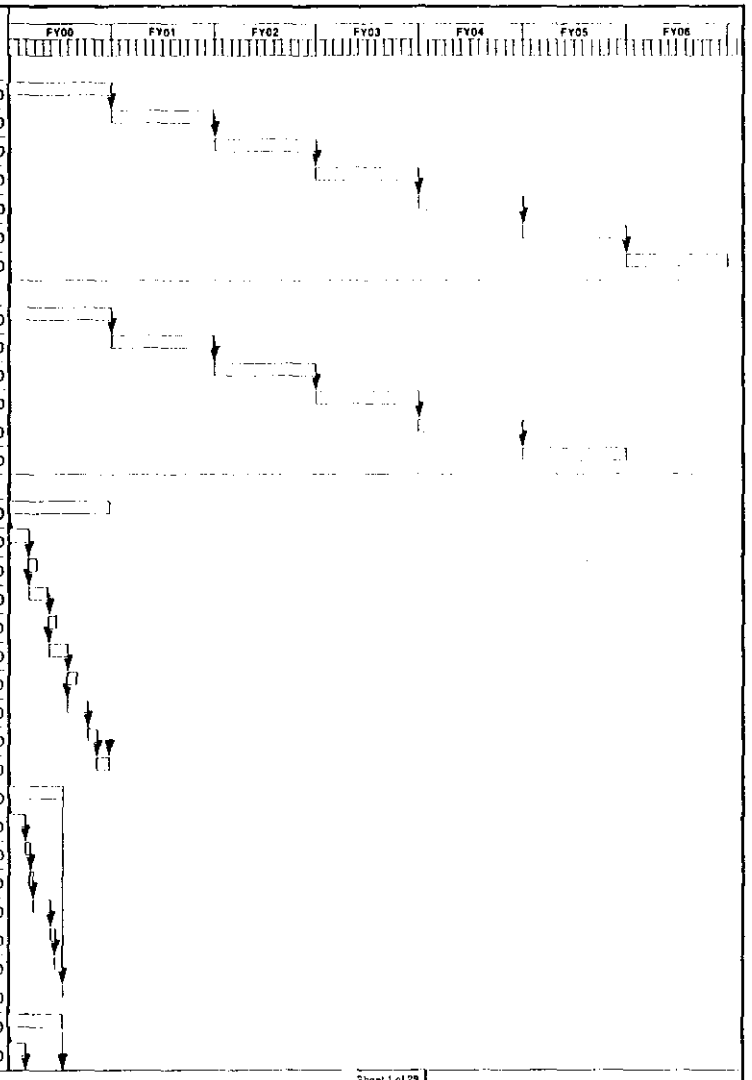
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04.01.03.01.01.01 Manage Closure/Vadose Zone				
FY00 Manage Vadose Zone/Closure Program	251	01OCT99	29SEP00	855,910.00
FY01 Manage Vadose Zone/Closure Program	251	02OCT00	28SEP01	786,858.00
FY02 Manage Vadose Zone/Closure Program	250	01OCT01	30SEP02	786,858.00
FY03 Manage Vadose Zone/Closure Program	251	01OCT02	30SEP03	786,858.00
FY04 Manage Vadose Zone/Closure Program	252	01OCT03	30SEP04	786,858.00
FY05 Manage Vadose Zone/Closure Program	251	01OCT04	30SEP05	786,858.00
FY06 Manage Vadose Zone/Closure Program	250	03OCT05	29SEP06	786,858.00
1.01.04.01.03.03.18.01 External Reviews				
FY00 Conduct External Peer Reviews	251	01OCT99*	29SEP00	151,932.10
FY01 Conduct external peer review	251	02OCT00*	28SEP01	163,028.00
FY02 Conduct external peer review	250	01OCT01	30SEP02	163,028.00
FY03 Conduct external peer review	251	01OCT02	30SEP03	163,028.00
FY04 Conduct external peer review	252	01OCT03	30SEP04	163,028.00
FY05 Conduct external peer review	251	01OCT04	30SEP05	163,028.00
1.01.04.01.03.03.18.02 Supporting Analyses				
Thermodynamic Model of Inventory	247	01OCT99	25SEP00	115,843.00
Prepare Draft Inventory Report for Tanks B-BX-BY	49	01OCT99	10DEC99	0.00
Review Draft Inventory Report for Tanks B-BX-BY	18	13DEC99	10JAN00	0.00
Prepare Draft Inventory Report for Tanks T-TX-TY	47	13DEC99	18FEB00	0.00
Review Draft Inventory Report for Tanks T-TX-TY	21	22FEB00	21MAR00	0.00
Prepare Draft Inventory Report for Tanks S-SX	49	22FEB00	28APR00	0.00
Review Draft Inventory Report for Tanks S-SX	22	01MAY00	31MAY00	0.00
Prep Draft Inventory Report for Remaining Tanks	48	01MAY00	10JUL00	0.00
ReviewDraft Inventory Report for Remaining Tanks	23	11JUL00	10AUG00	0.00
Consolidate and Finalize Report	31	11AUG00	25SEP00	0.00
Leak Estimates	134	01OCT99	13APR00	113,834.00
Develop Data Package to Support Calc's	41	01OCT99	30NOV99	0.00
Review Data Pkg	11	01DEC99	15DEC99	0.00
Finalize Data Package	9	16DEC99	30DEC99	0.00
Perform Leak Loss Calculations	41	31DEC99	29FEB00	0.00
Prepare Draft Leak Loss Volume Report	11	01MAR00	15MAR00	0.00
Review Leak Loss Volume Report	20	16MAR00	12APR00	0.00
Issue Final Leak Loss Volume Report	1	13APR00	13APR00	0.00
Risk Assessment Capability	134	01OCT99	13APR00	55,010.00
Develop Selection Criteria	41	01OCT99	30NOV99	0.00



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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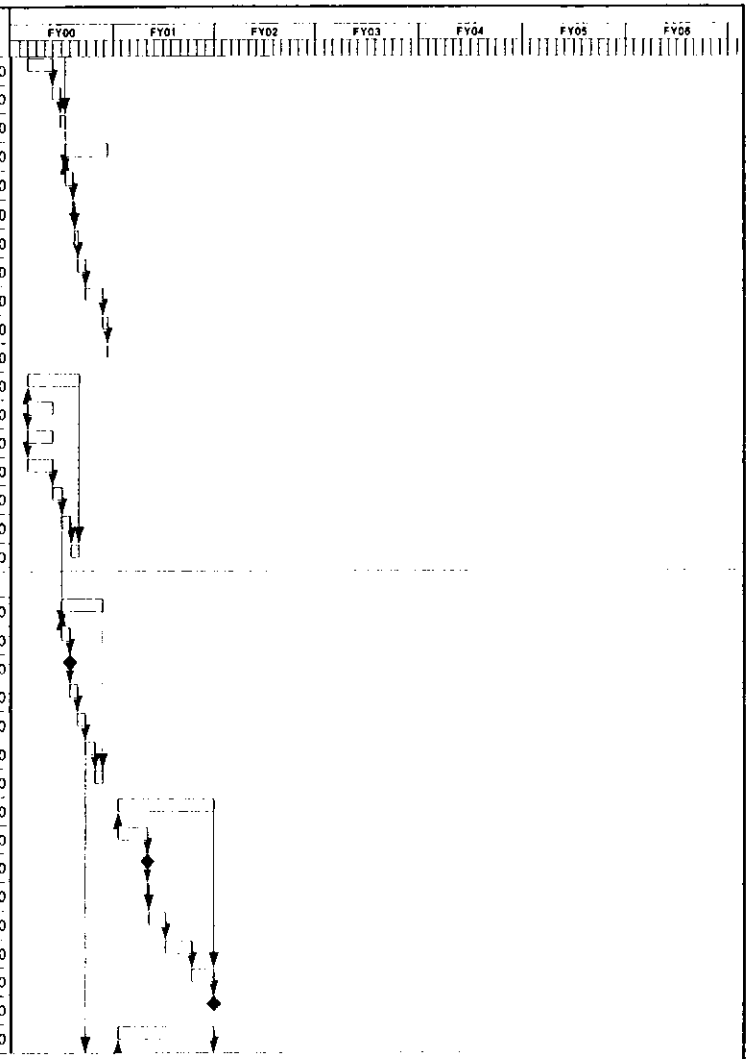
Sheet 1 of 29

LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Prepare Draft Risk Assessment Tools Document	61	01DEC99	29FEB00	0.00
Review Draft Risk Assessment Tools Document	20	01MAR00	28MAR00	0.00
Prepare Final Risk Assessment Tools Document	12	29MAR00	13APR00	0.00
Initial Assessments	103	14APR00	11SEP00	262,630.00
Define Scope/Approach for Initial Assessments	20	14APR00	11MAY00	0.00
Review SOW for Initial Assessments	3	12MAY00	16MAY00	0.00
Revise SOW for Initial Assessments	7	17MAY00	25MAY00	0.00
Place Contract	20	26MAY00	23JUN00	0.00
Perform Initial Assessments	42	26JUN00	24AUG00	0.00
Review Initial Assessments	10	25AUG00	08SEP00	0.00
Issue Initial Assessments Document	1	11SEP00	11SEP00	0.00
Engineering Feasibility Study for Caisons	125	01DEC99	30MAY00	86,728.00
Investigate Structural Integrity of Caisons	61	01DEC99*	29FEB00	0.00
Identify Safety Issues	61	01DEC99	29FEB00	0.00
Prepare Feasibility Study	61	01DEC99	29FEB00	0.00
Prepare Draft Recommendation Report	22	01MAR00	30MAR00	0.00
Review Draft Report	20	31MAR00	27APR00	0.00
Finalize/Issue Report	20	02MAY00	30MAY00	0.00
1.01.04.01.03.03.18.03 Supporting Technologies				
Demonstrate Slant Hole	100	31MAR00*	22AUG00	295,291.00
Determine Slant Borehole Requirements	20	31MAR00*	27APR00	0.00
Issue Slant Borehole Requirements Document	0		27APR00	0.00
Prepare Work Package	20	28APR00	25MAY00	0.00
Demonstrate Slant Hole	20	26MAY00	23JUN00	0.00
Decommission and Close	20	26JUN00	25JUL00	0.00
Issue Report and Recommendations	20	26JUL00	22AUG00	0.00
ERT (Installation/Monitoring)	239	18OCT00	28SEP01	0.00
Determine ERT Requirements	70	18OCT00*	30JAN01	2,440.00
Issue ERT Requirements Document	0		30JAN01	0.00
Decision Point (Proceed w/ERT)	5	31JAN01	06FEB01	0.00
Procure ERT Services	43	07FEB01	09APR01	18,970.00
Deploy ERT	64	10APR01	10JUL01	135,124.00
Demonstrate ERT	57	11JUL01	28SEP01	13,124.00
Issue ERT Letter Report with Initial Reports	0		28SEP01	0.00
Lysimeters (Installation/Monitoring)	239	18OCT00	28SEP01	56,397.20



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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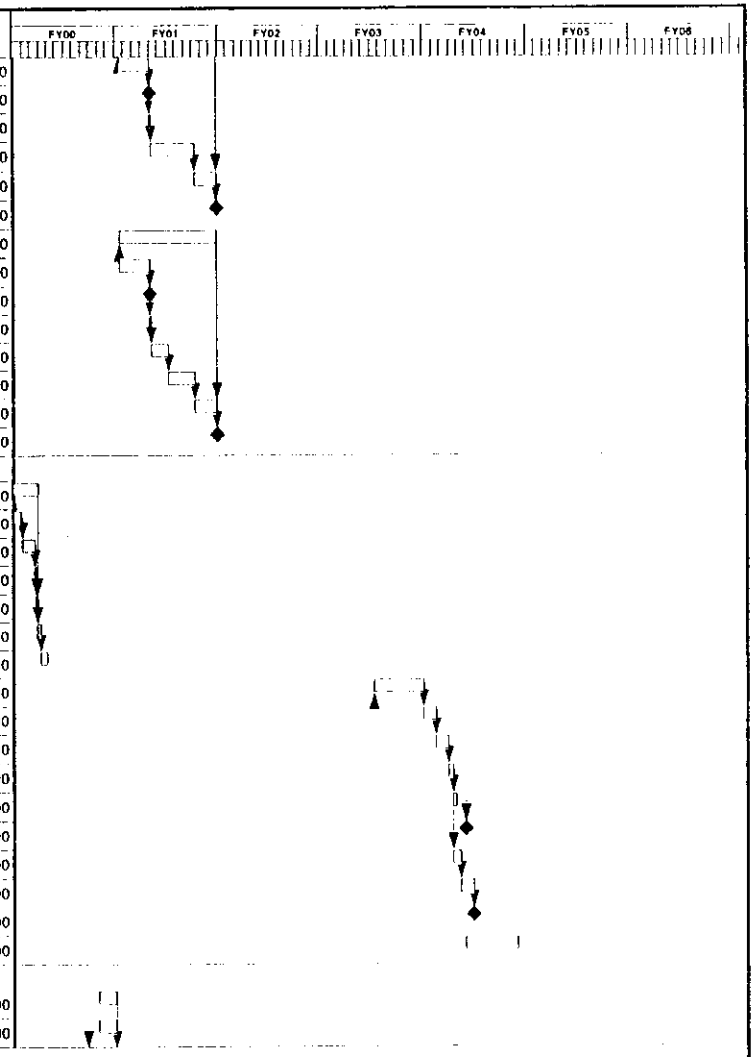
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Determine Lysimeter Requirements	70	18OCT00*	30JAN01	0.00
Issue Lysimeter Requirement Document	0		30JAN01	0.00
Decision Point (Proceed w/Lysimeters)	5	31JAN01	06FEB01	0.00
Deploy/Modify Lysimeters	107	07FEB01	10JUL01	0.00
Operate Lysimeters	57	11JUL01	28SEP01	0.00
Issue Annual Report	0		28SEP01	0.00
Hydraulic Instruments (Installation/Monitoring)	239	18OCT00	28SEP01	108,548.80
Determine Hydraulic Instruments Requirements	70	18OCT00*	30JAN01	0.00
Issue Hydraulic Instruments Requirement Document	0		30JAN01	0.00
Decision Point (Proceed w/Hydraulics)	5	31JAN01	06FEB01	0.00
Procure Hydraulic Instruments	43	07FEB01	09APR01	0.00
Deploy Hydraulic Instruments	64	10APR01	10JUL01	0.00
Operate Hydraulic Instruments	57	11JUL01	28SEP01	0.00
Issue Annual Report	0		28SEP01	0.00
1.01.04.01.03.03.18.04 RFI/CMS Work Plan & RFI Report				
RFI/CMS Work Plan	60	01OCT99	29DEC99	77,137.00
Ecology Review Draft RFI/CMS WP	30	01OCT99	30OCT99	0.00
Inc. Ecology comments, RFI/CMS Work Plan	31	01NOV99	15DEC99	0.00
Release Rev. 1 RFI/CMS Work Plan	3	16DEC99	20DEC99	0.00
Transmit Rev. 1 RFI/CMS Work Plan to DOE	5	21DEC99	29DEC99	0.00
DOE transmit Rev 1 RFI/CMS Work Plan to Ecology	5	30DEC99	06JAN00	0.00
EcologyTransmits Approval Letter	17	07JAN00	31JAN00	0.00
Prepare prel. draft RFI report	120	10APR03	30SEP03*	196,124.00
Review preliminary draft RFI Report	30	01OCT03	11NOV03	0.00
Incorp. comments, prepare draft A RFI report	30	12NOV03	29DEC03	0.00
Transmit to DOE	10	30DEC03	13JAN04	0.00
Transmit to Ecology	10	14JAN04	27JAN04	0.00
TPA Milestone M-45-55	0		29FEB04*	0.00
Ecology review and comment	30	14JAN04	12FEB04	0.00
Inc. Ecology comments, prepare final RFI report	30	13FEB04	26MAR04	0.00
Issue final RFI Report	0		26MAR04	0.00
Update RFI/CMS Work Plan for next phase	128	26FEB04*	26AUG04	0.00
1.01.04.01.03.03.18.05 RCRA Well Monitoring				
TWRS Monitoring Well Network Maintenance	43	01AUG00*	29SEP00	200,000.00
Supply Qualified Geologist to Log New Wells	43	01AUG00*	29SEP00	0.00



Project Start	01OCT97
Project Finish	06DEC59
Data Date	01OCT99
Run Date	05AUG99

Early Bar
Progress Bar
Critical Activity

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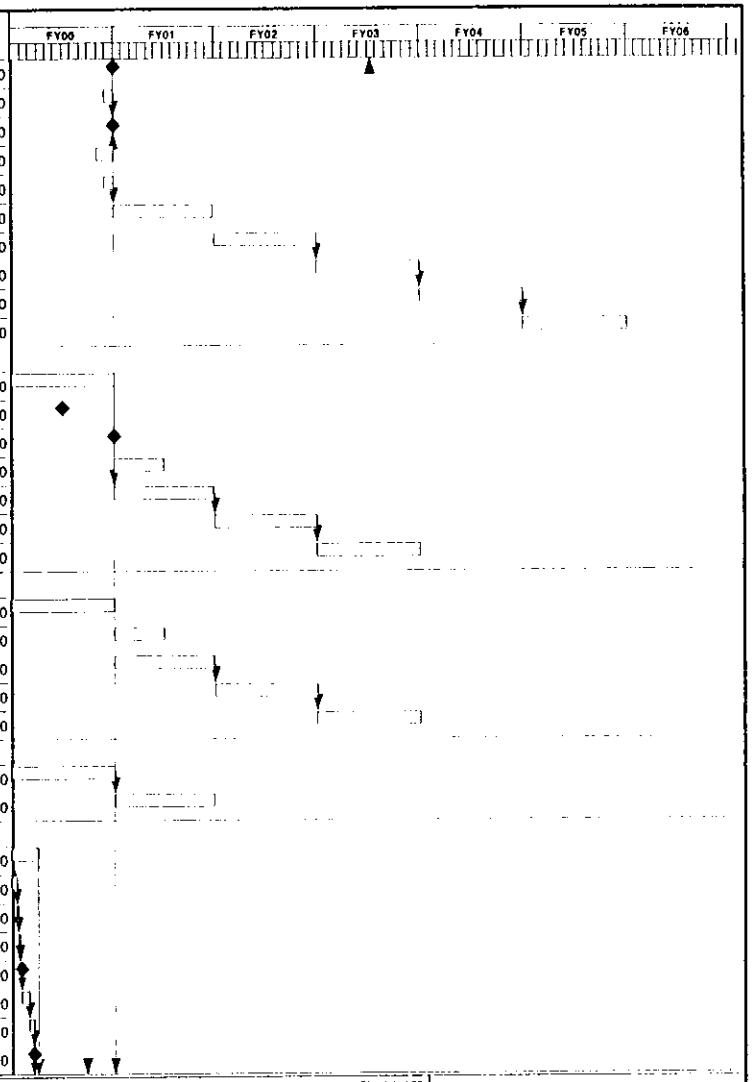
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Issue Geology Document Describing New Wells	0		29SEP00	0.00
Provide Lab Soil Moisture Measurements of Sample	20	01SEP00*	29SEP00	0.00
Issue RCRA Borehole Completion Report	0		29SEP00	0.00
Collect Vadose Zone Samples during Drilling	43	01AUG00*	29SEP00	0.00
Geophysical Logging	20	01SEP00*	29SEP00	0.00
FY01 Maintain Monitoring Well Network	251	02OCT00	28SEP01	200,000.00
FY02 Maintain monitoring well network	250	01OCT01*	30SEP02	200,000.00
FY03 Maintain monitoring well network	251	01OCT02	30SEP03	200,000.00
FY04 Maintain monitoring well network	252	01OCT03	30SEP04	200,000.00
FY05 Maintain monitoring well network	251	01OCT04	30SEP05	200,000.00
1.01.04.01.03.03.18.06 Spectral Gamma Logging				
Complete Baseline Logging	251	01OCT99*	29SEP00	600,000.00
TPA Milestone M-45-50-T03	0		31MAR00*	0.00
TPA Milestone M-45-50	0		29SEP00*	0.00
Moisture & Gamma Logging inside WMA's	126	02OCT00*	03APR01	400,000.00
Moisture/Gamma Logging Outside of S-SX	251	02OCT00	28SEP01	306,000.00
Moisture/Gamma Logging Outside of B-BX-BY	250	01OCT01	30SEP02	585,000.00
Moisture/Gamma Logging Outside of T-TX-TY	251	01OCT02	30SEP03	609,000.00
1.01.04.01.03.03.18.07 Support to Spectral Gamma Logging				
Support to Spectral Gamma Logging	251	01OCT99*	29SEP00	74,283.00
Support to Moisture & Gamma Logging inside WMA's	126	02OCT00*	03APR01	64,199.20
Support Moisture/Gamma Logging Outside S-SX	251	02OCT00*	28SEP01	64,199.20
Support Moisture/Gamma Logging Outside B-BX-BY	250	01OCT01*	30SEP02	64,199.20
Support Moisture/Gamma Logging Outside T-TX-TY	251	01OCT02*	30SEP03	64,199.20
1.01.04.01.03.03.18.08 Historical Gamma Logging Evaluation				
Analyze Historic Gross Gamma Logging (B, T, TX)	251	01OCT99*	29SEP00	179,206.00
Analyze Historic Gross Gamma Logging (B, T, TX)	251	02OCT00*	28SEP01	179,206.00
1.01.04.01.03.03.19.03 Site Specific Work Plan S-SX				
Site Specific Work Plan S-SX	62	01OCT99	31DEC99	82,059.00
Inc comments, Prepare Draft A WP Addenda	11	01OCT99	15OCT99	0.00
Transmit Draft A WP Addenda to DOE	5	18OCT99	22OCT99	0.00
DOE transmit Draft A WP Addenda to Ecology	5	25OCT99	29OCT99	0.00
TPA Milestone M-45-52	0		31OCT99*	0.00
Ecology Review, Draft 0 WP Addenda	30	01NOV99	30NOV99	0.00
Inc Ecology comments, Prepare Rev 1 WP Addenda	13	01DEC99	17DEC99	0.00
Release Rev. 1 Work Plan Addenda	0		17DEC99	0.00



Project Start 01OCT97
Project Finish 06DEC59
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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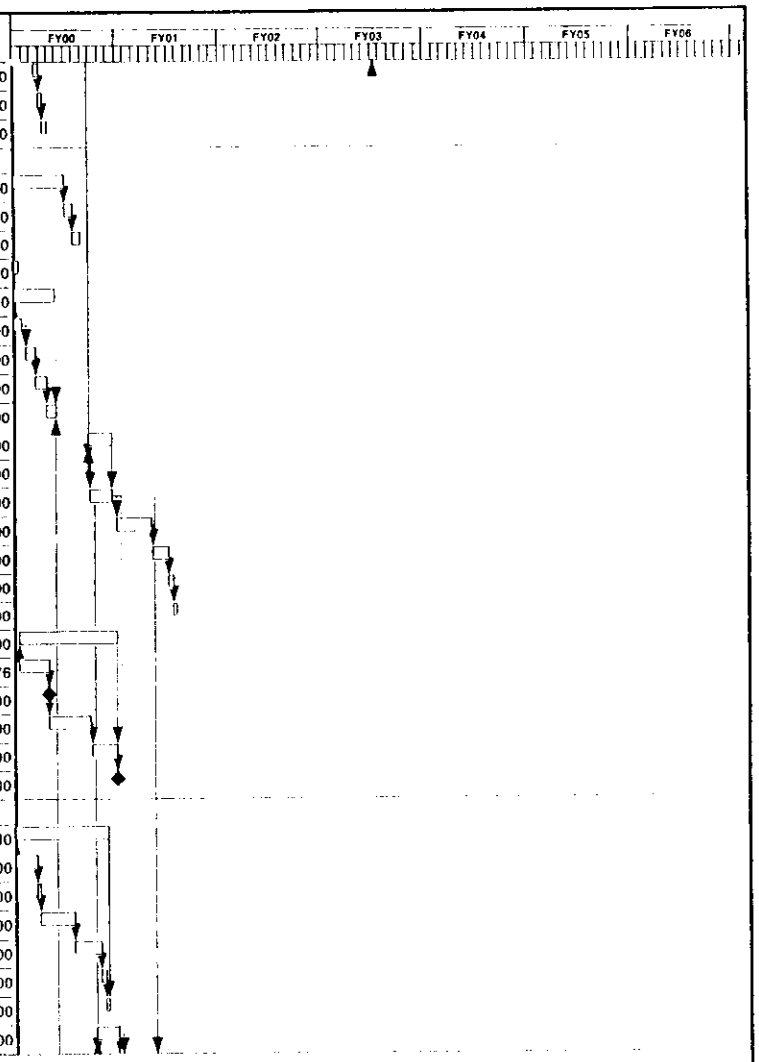
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Transmit Rev. 1 WP Addenda to DOE	8	20DEC99	31DEC99	0.00
DOE Transmit Rev 1 WP Addenda to Ecology	9	04JAN00	14JAN00	0.00
Ecology Transmits Approval Letter	11	17JAN00	31JAN00	0.00
1.01.04.01.03.03.19.04 Drilling and Sampling S-SX				
Prepare 1st Borehole Summary Report	125	01OCT99	31MAR00	52,944.00
Review 1st Borehole Summary Report	20	03APR00	28APR00	0.00
Incorporate Comments/Issue Summary Report	20	01MAY00	26MAY00	0.00
1st Borehole, Driller Demobilization	11	01OCT99	15OCT99	3,050.00
2nd Borehole, Planning/Prep	98	01OCT99	23FEB00	112,661.00
2nd Borehore, Place Contracts for up to 9 Holes	21	01OCT99*	29OCT99	0.00
2nd Borehole, Planning (field/lab)	22	15NOV99*	16DEC99	0.00
2nd Borehole, Prepare Work Package	25	17DEC99	25JAN00	0.00
2nd Borehole, Readiness Assessment	20	28JAN00	25FEB00	0.00
2nd Borehole, Drill and Sample	56	26JUN00	14SEP00	1,234,766.00
2nd Borehole, Site Prep	2	26JUN00	27JUN00	0.00
2nd Borehole, Drill and Sample	54	28JUN00	14SEP00	0.00
2nd Borehole, Prepare Summary Report	85	02OCT00*	02FEB01	33,104.00
2nd Borehole, Prepare Summary Report	40	05FEB01	02APR01	19,840.00
2nd Borehole, Review Summary Report	10	03APR01	16APR01	0.00
2nd Borehole,IncorpComments/Issue Summary Report	10	17APR01	30APR01	0.00
Cone Penetrometer Deployment	240	18OCT99*	29SEP00	0.00
Determine Cone Pen Requirements	71	18OCT99*	31JAN00	14,927.76
Issue Cone Pen Requirements Letter Report	0		31JAN00	0.00
Deploy Cone Penetrometer	107	01FEB00	30JUN00	320,419.90
Document Cone Pen Results in SX	62	05JUL00	29SEP00	0.00
Issue Cone Pen Results Document	0		29SEP00	0.00
1.01.04.01.03.03.19.05 Laboratory Analysis S-SX				
1st Borehole Lab Analysis & Report	230	01OCT99	30AUG00	399,433.40
1st Borehole, Lab Analysis	53	01OCT99	16DEC99	0.00
1st Borehole, Select Samples for Detail Analysis	8	17DEC99	30DEC99	0.00
1st Borehole, Conduct Detailed Analysis	84	31DEC99	28APR00	0.00
1st Borehole, Prep Draft Detailed Analysis Rpt	65	01MAY00	02AUG00	0.00
1st Borehole, Review Draft Detailed Analysis Rpt	10	03AUG00	16AUG00	0.00
1st Borehole, Revise/Issue Report	10	17AUG00	30AUG00	0.00
2nd Borehole, Lab Analysis	55	14JUL00	29SEP00	267,039.00



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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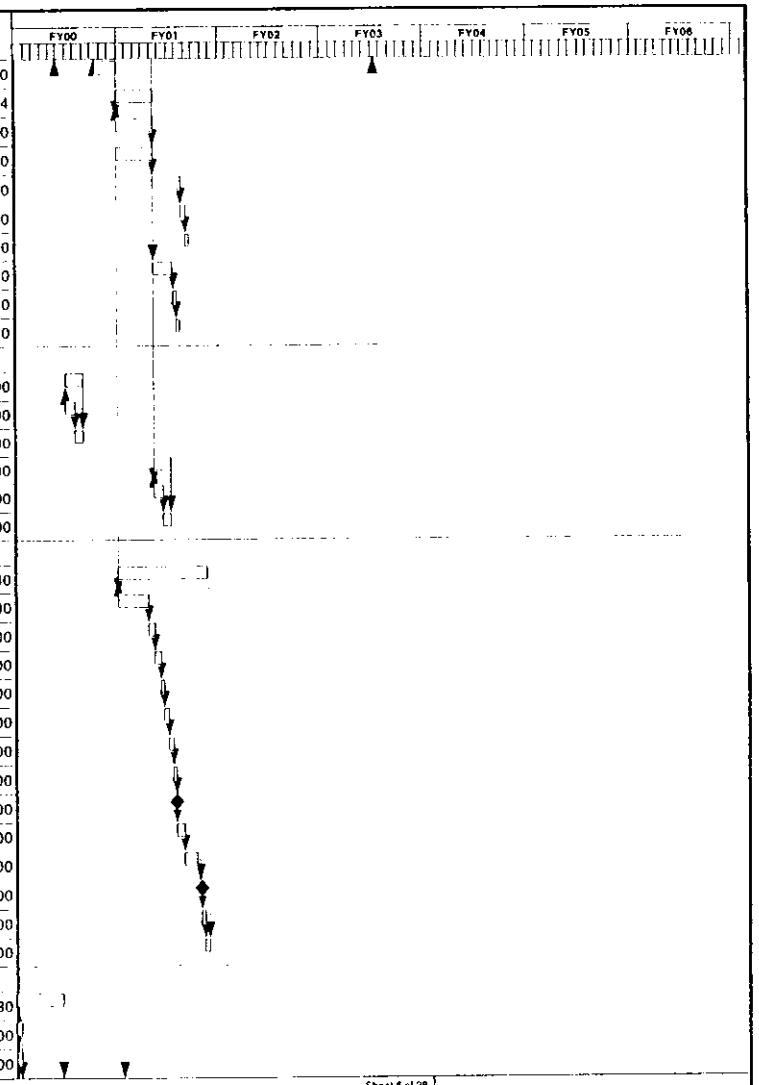
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd borehole, Initial Lab Analysis	55	14JUL00	29SEP00	0.00
2nd Borehole, Lab Analysis	90	02OCT00	09FEB01	600,967.14
2nd Borehole, Hydraulic Properties Analysis	90	02OCT00	09FEB01	0.00
2nd Borehole, Rad/Chem Analysis of Comp Samples	90	02OCT00	09FEB01	0.00
2nd Borehole, Prepare Chem Extraction Report	71	12FEB01	22MAY01	0.00
2nd Borehole, Review Chem Extraction Report	10	23MAY01	06JUN01	0.00
2nd Borehole,Revise/Issue Chem Extraction Report	10	07JUN01	20JUN01	0.00
2nd Borehole, Prepare Hydraulics Draft Report	49	12FEB01	20APR01	0.00
2nd Borehole, Review Hydraulics Draft Report	10	23APR01	04MAY01	0.00
2nd Borehole, Revise/Issue Hydraulics Report	10	07MAY01	18MAY01	0.00
1.01.04.01.03.03.19.06 Decommisioning and Waste Disposal S-SX				
1st Borehole, Decommision & Waste Disposal	42	03APR00	31MAY00	204,955.00
1st Borehole, Decommission	21	03APR00*	01MAY00	0.00
1st Borehole, Dispose of Waste	21	02MAY00	31MAY00	0.00
2nd Borehole, Decommission & Waste Disposal	42	14FEB01	13APR01	103,451.00
2nd Borehole, Decommissioning	21	14FEB01	15MAR01	0.00
2nd Borehole, Dispose of Waste	21	16MAR01	13APR01	0.00
1.01.04.01.03.03.19.07 Field Investigation Reports S-SX				
FIR S-SX (Risk Assessment)	222	02OCT00	17AUG01	460,940.40
Prepare Internal Draft FIR	75	02OCT00*	19JAN01	0.00
Review Internal Draft FIR	15	22JAN01	09FEB01	0.00
Inc. Comments, Prepare Draft A FIR	15	12FEB01	05MAR01	0.00
DOE Review Rev A FIR	10	06MAR01	19MAR01	0.00
Incorp. Comments/Prep Rev 0 FIR	10	20MAR01	02APR01	0.00
Transmit Rev 0 FIR to DOE	10	03APR01	16APR01	0.00
DOE Transmit Rev 0 FIR to Ecology	10	17APR01	30APR01	0.00
TPA Milestone M-45-55-T01	0		30APR01*	0.00
Ecology Review Rev 0 FIR for S-SX	30	01MAY01	30MAY01	0.00
Incorp Ecology Comments, Prep Rev 1 FIR	30	31MAY01	12JUL01	0.00
Release Rev. 1 FIR	0		25JUL01	0.00
Transmit Rev 1 FIR to DOE	10	26JUL01	08AUG01	0.00
DOE Transmit Rev. 1 FIR to Ecology	10	09AUG01	22AUG01	0.00
1.01.04.01.03.03.19.08 Permitting and Safety S-SX				
Safety Basis S-SX	115	01OCT99	17MAR00	69,576.80
Provide Borehole/Geology Description	10	01OCT99	14OCT99	0.00
Provide Drilling Equipment/Process Description	10	01OCT99	14OCT99	0.00



Project Start 01OCT97
Project Finish 06DEC05
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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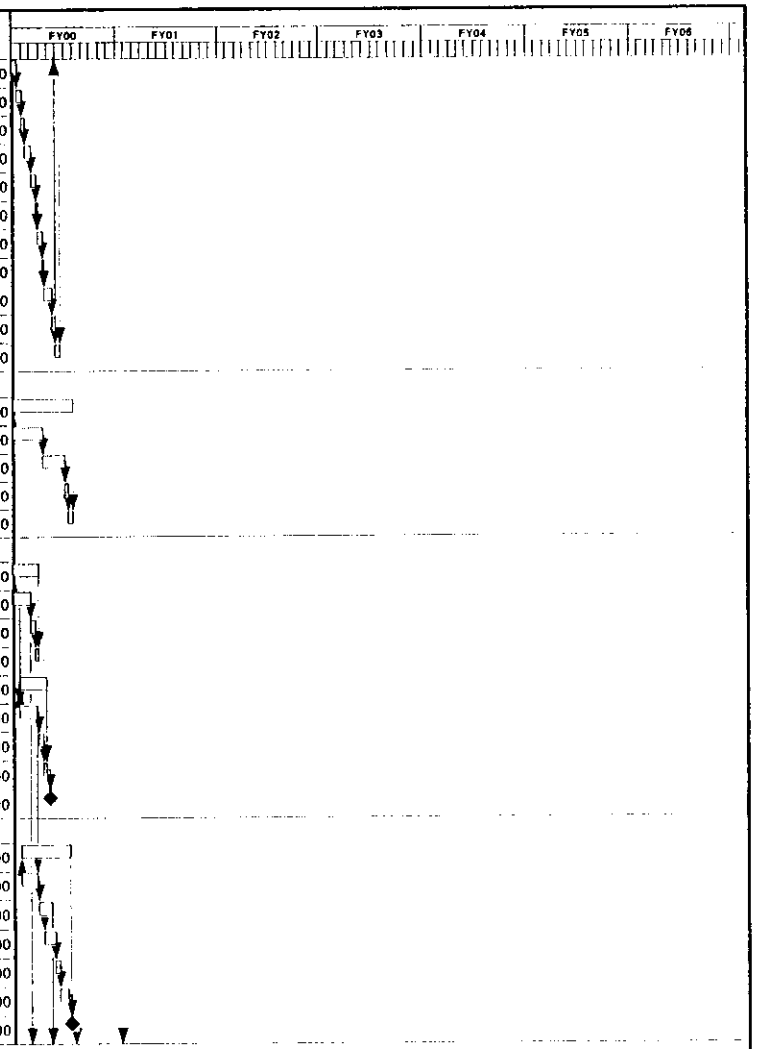
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Develop Rad/Tox Source Term	10	01OCT99	14OCT99	0.00
Prepare Release Calc Document	15	15OCT99	04NOV99	0.00
Prepare USQ Determination	5	05NOV99	11NOV99	0.00
Prepare PHA Document	15	12NOV99	06DEC99	0.00
Define Controls	10	07DEC99	20DEC99	0.00
Prepare AB Change Package	5	21DEC99	29DEC99	0.00
Conduct Peer and Tier I Reviews	10	30DEC99	13JAN00	0.00
Transmit AB Revision Request to DOE	5	14JAN00	20JAN00	0.00
Conduct Tier II/III Reviews	20	21JAN00	17FEB00	0.00
Transmit Authorization Letter/SER	5	18FEB00	25FEB00	0.00
Amend AB Document	15	28FEB00	17MAR00	0.00
1.01.04.01.03.03.19.09 Decommisioning and Sampling 41-09-39				
41-09-39 Sample Analysis & Report	144	01OCT99	27APR00	625,749.00
Sample Analysis	70	01OCT99	13JAN00	0.00
Prepare Field Lab Report	54	14JAN00	30MAR00	0.00
Review Field/Lab Report	10	31MAR00	13APR00	0.00
Revise Issue Field/Lab Report	10	14APR00	27APR00	0.00
1.01.04.01.03.03.20.01 Subsurface Conditions Description Report B-BX-BY				
B-BX-BY Data Package	61	01OCT99	30DEC99	91,413.00
Complete B-BX-BY Data Pkg.	41	01OCT99*	30NOV99	0.00
Review B-BX-BY Data Pkg.	11	01DEC99	15DEC99	0.00
Revise/Issue B-BX-BY Data Pkg.	9	16DEC99	30DEC99	0.00
Subsurface Conditions Description Report	63	22OCT99	25JAN00	128,053.00
Develop Draft SCD Report	43	22OCT99	23DEC99	0.00
Review Draft SCD Report	10	28DEC99	11JAN00	0.00
Incorporate Comments, Prepare Final SCD Report	10	12JAN00	25JAN00	0.00
Archive as Appendix for Work Plan	0		07FEB00	0.00
1.01.04.01.03.03.20.02 Data Quality Objectives B-BX-BY				
Data Quality Objectives B-BX-BY	118	27OCT99	17APR00	156,705.00
Plan DQO	40	27OCT99	23DEC99	0.00
Conduct DQO Meetings	30	28DEC99	08FEB00	0.00
Prepare Draft DQO Report	30	12JAN00	23FEB00	0.00
Review Draft DQO Report	9	24FEB00	07MAR00	0.00
Incorporate Comments, Prepare Final DQO report	20	08MAR00	04APR00	0.00
Issue Final DQO Report	0		17APR00	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05MAY99

Early Bar
Progress Bar
Critical Activity

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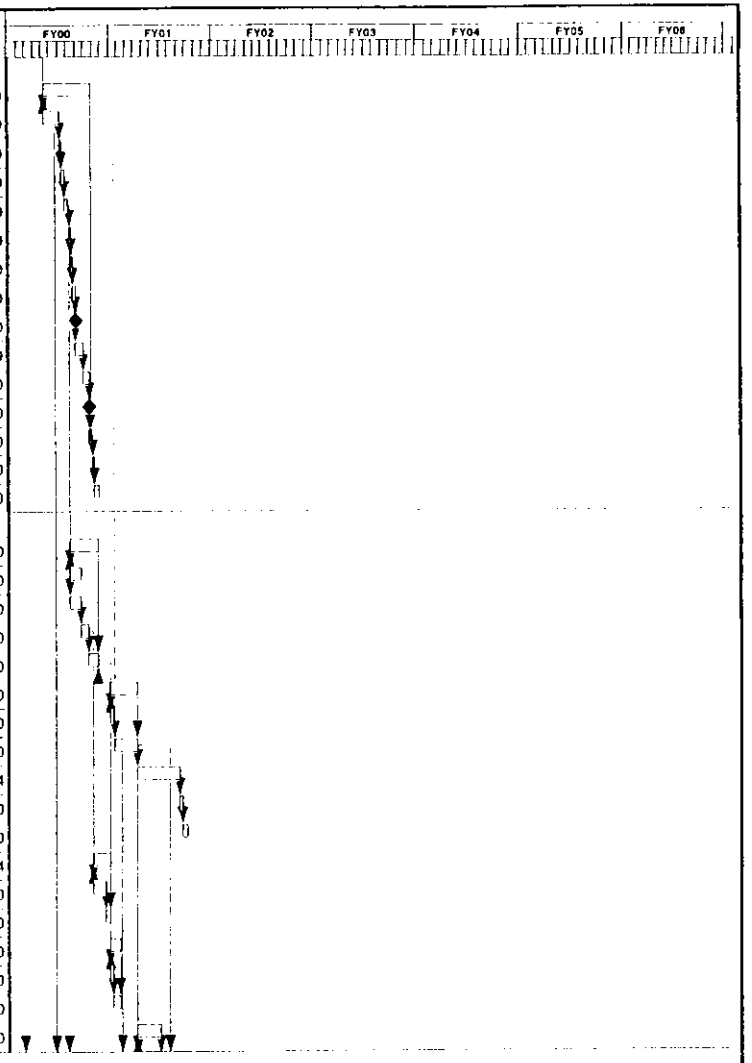
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04.01.03.03.20.03 Site Specific Work Plan B-BX-BY				
Site Specific Work Plan B-BX-BY	119	09FEB00	28JUL00	211,605.00
Prepare Internal Draft B-BX-BY WP Addendum	40	09FEB00	05APR00	0.00
Internal Review Draft WP Addendum	6	06APR00	13APR00	0.00
Inc Comments, Prepare Draft A WP Addendum	6	14APR00	21APR00	0.00
DOE Review Draft A B-BX-BY WP Addendum	10	24APR00	05MAY00	0.00
Incorp Comments/Prep Rev 0 B-BX-BY WP Addendum	5	08MAY00	12MAY00	0.00
Transmit Rev 0 WP Addendum to DOE	6	15MAY00	22MAY00	0.00
DOE Transmit Rev 0 WP Addendum to Ecology	5	23MAY00	30MAY00	0.00
TPA Milestone M-45-53	0		31MAY00*	0.00
Ecology Review, Rev 0 WP Addendum	21	31MAY00	28JUN00	0.00
Inc. Ecology Comments, Prepare Rev 1 WP Addendum	14	29JUN00	20JUL00	0.00
Release Rev. 1 WP Addendum	0		21JUL00	0.00
Transmit Rev. 1 WP Addendum to DOE	5	24JUL00	28JUL00	0.00
DOE Transmit Rev. 1 WP Addendum to Ecology	5	31JUL00	04AUG00	0.00
Ecology Transmits Approval Letter	15	07AUG00	25AUG00	0.00
1.01.04.01.03.03.20.04 Drilling and Sampling B-BX-BY				
1st Borehole, Prep/Planning	69	08MAY00	15AUG00	100,755.00
Modify Contracts, (field/lab)	29	08MAY00	16JUN00	0.00
1st Borehole, Planning (field/lab)	29	08MAY00	16JUN00	0.00
1st Borehole, Prep Field Procedures & Specs	19	19JUN00	17JUL00	0.00
1st Borehole, Readiness Assessment	21	18JUL00	15AUG00	0.00
1st Borehole, Drilling and Sampling	66	02OCT00	08JAN01	1,018,866.00
1st Borehole, Site Prep	10	02OCT00*	13OCT00	0.00
1st Borehole, Drill and Sample	56	16OCT00	08JAN01	0.00
Prepare 1st Borehole Summary Report	105	09JAN01	06JUN01	52,944.24
Review 1st Borehole Summary Report	10	07JUN01	20JUN01	0.00
Incorporate Comments/Issue Summary Report	10	21JUN01	05JUL01	0.00
2nd Borehole, Planning/Prep	43	01AUG00	29SEP00	64,324.24
2nd Borehole, Planning (field/lab)	30	01AUG00	12SEP00	0.00
2nd Borehole, Prep Field Procedures & Specs	13	13SEP00	29SEP00	0.00
2nd Borehole, Planning/Prep	29	02OCT00	09NOV00	34,727.20
2nd Borehole, Prep Field Procedures & Specs	8	02OCT00	11OCT00	0.00
2nd Borehole, Readiness Assessment	21	12OCT00	09NOV00	0.00
2nd Borehole, Drill and sample	61	09JAN01	04APR01	1,018,935.00



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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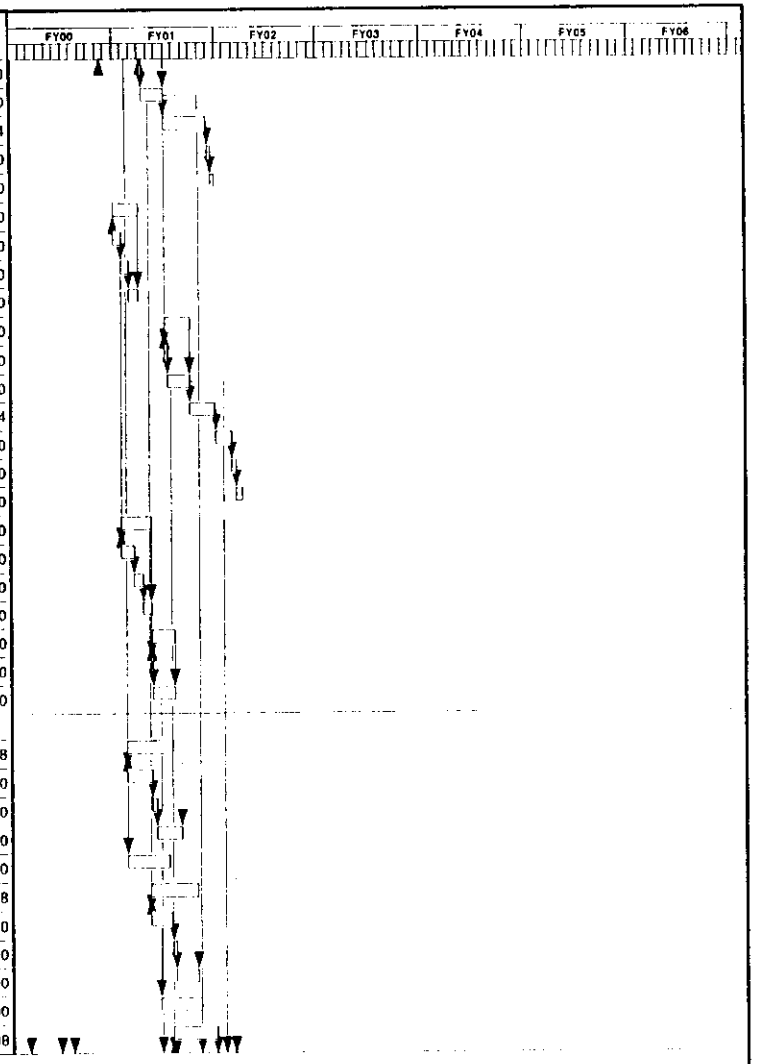
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd Borehole, Site Prep	5	09JAN01	15JAN01	0.00
2nd Borehole, Drill and sample	56	16JAN01	04APR01	0.00
2nd Borehole, Prepare Summary Report	105	05APR01	31AUG01	52,944.24
2nd Borehole, Review Summary Report	10	04SEP01	17SEP01	0.00
Incorporate Comments/Issue Summary Report	9	18SEP01	28SEP01	0.00
3rd Borehole, Prep/Planning	60	02OCT00	28DEC00	100,755.00
3rd Borehole, Planning (field/lab)	19	02OCT00*	26OCT00	0.00
3rd Borehole, Prep Field Procedures & Specs	20	27OCT00	27NOV00	0.00
3rd Borehole, Readiness Assessment	21	28NOV00	28DEC00	0.00
3rd Borehole, Drill and sample	61	05APR01	29JUN01	1,018,935.00
3rd Borehole, Site Prep	5	05APR01	11APR01	0.00
3rd Borehole, Drill and sample	56	12APR01	29JUN01	0.00
3rd Borehole, Prepare Summary Report	63	02JUL01	28SEP01	31,819.04
3rd Borehole, Prepare Summary Report	42	01OCT01	29NOV01	21,125.20
Review 3rd Borehole Summary Report	10	30NOV01	13DEC01	0.00
Incorporate Comments/Issue Summary Report	10	14DEC01	02JAN02	0.00
1st Field Characterization, Planning/Prep	71	27OCT00	09FEB01	0.00
1st Field Characterization, Planning (field/lab)	30	27OCT00	11DEC00	0.00
1st Field Character, Prep Field Procedures/Specs	21	12DEC00	12JAN01	0.00
1st Field Characterization, Readiness Assessment	20	15JAN01	09FEB01	0.00
1st Field Characterization, Drill and Sample	61	12FEB01	08MAY01	637,550.80
1st Field Characterization, Site Prep	5	12FEB01	16FEB01	0.00
1st Field Characterization, Drill and Sample	56	20FEB01	08MAY01	0.00
1.01.04.01.03.03.20.05 Laboratory Analysis B-BX-BY				
1st Borehole, Lab Analysis	112	13NOV00	25APR01	453,898.88
1st Borehole, Screening Lab Analysis	61	13NOV00	12FEB01	0.00
1st Borehole, Select Samples for Rad/Chem Analys	10	13FEB01	27FEB01	0.00
1st Borehole, Rad/Chem Analysis	65	28FEB01	30MAY01	0.00
1st Borehole, Hydraulic Properties Analysis	102	13NOV00	11APR01	0.00
2nd Borehole, Lab Analysis	116	08FEB01	24JUL01	453,898.88
2nd Borehole, Screening Lab Analysis	51	08FEB01	20APR01	0.00
2nd Borehole, Select Samples for Rad/Chem Analys	10	23APR01	04MAY01	0.00
2nd Borehole, Rad/Chem Analysis	55	07MAY01	24JUL01	0.00
2nd Borehole, Hydraulic Properties Analysis	102	09MAR01	01AUG01	0.00
3rd Borehole, Lab Analysis	109	26APR01	28SEP01	453,898.88



Project Start 01OCT99
Project Finish 05DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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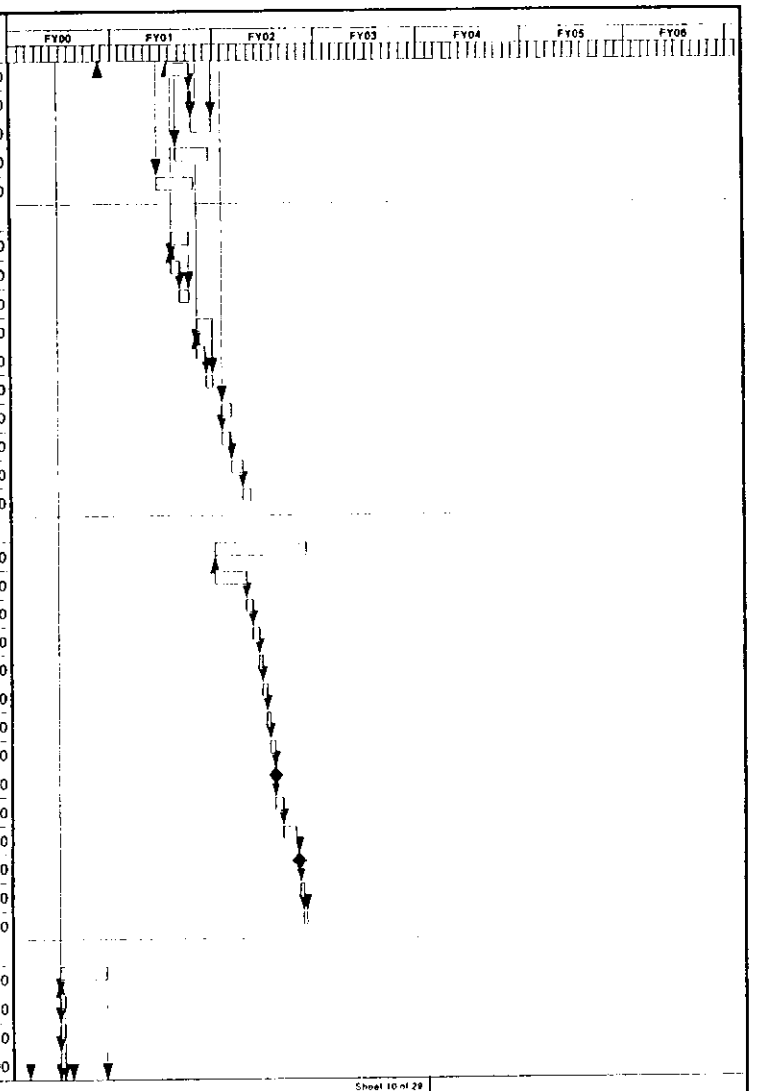
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
3rd Borehole, Screening Lab Analysis	51	26APR01	09JUL01	0.00
3rd Borehole, Select Samples for Rad/Chem Analys	5	10JUL01	16JUL01	0.00
3rd Borehole, Rad/Chem Analysis	53	17JUL01	28SEP01	0.00
3rd Borehole, Hydraulic Properties Analysis	79	24MAY01	14SEP01	0.00
1st Field Characterization, Rad/Chem Analysis	88	19MAR01	20JUL01	201,433.90
1.01.04.01.03.03.20.06 Decommisioning and Waste Disposal B-BX-BY				
1st Borehole, Decommssioning & Waste Disposal	42	04MAY01	03JUL01	178,456.00
1st Borehole, Decommission	21	04MAY01	04JUN01	0.00
1st Borehole, Dispose of Waste	21	05JUN01	03JUL01	0.00
1st Borehole, Decommssioning & Waste Disposal	41	02AUG01	28SEP01	178,456.00
2nd Borehole, Decommission	22	02AUG01	31AUG01	0.00
2nd Borehole, Dispose of Waste	19	04SEP01	28SEP01	0.00
3rd Borehole, Decommission	23	30OCT01	03DEC01	103,450.40
3rd Borehole, Dispose of Waste	21	30OCT01	29NOV01	75,005.60
1st Characterization, Decommission	22	04DEC01	08JAN02	0.00
1st Characterization, Dispose of Waste	20	09JAN02	05FEB02	0.00
1.01.04.01.03.03.20.07 Field Investigation Reports B-BX-BY				
FIR B-BX-BY (Risk Assessment)	225	01OCT01	23AUG02	460,940.40
Prepare Internal Draft FIR	75	01OCT01*	21JAN02	0.00
Review Internal Draft FIR	15	22JAN02	11FEB02	0.00
Inc. Comments, Prepare Draft A FIR	15	12FEB02	05MAR02	0.00
DOE Review Rev A FIR	10	06MAR02	19MAR02	0.00
Incorp. Comments/Prep Rev 0 FIR	10	20MAR02	02APR02	0.00
Transmit Rev 0 FIR to DOE	10	03APR02	16APR02	0.00
DOE Transmit Rev 0 FIR to Ecology	10	17APR02	30APR02	0.00
TPA Milestone M-45-55-T02	0		30APR02*	0.00
Ecology Review Rev 0 FIR for B-BX-BY	30	01MAY02	30MAY02	0.00
Incorp Ecology Comments, Prep Rev 1 FIR	30	31MAY02	15JUL02	0.00
Release Rev. 1 FIR	0		26JUL02	0.00
Transmit Rev 1 FIR to DOE	10	29JUL02	09AUG02	0.00
DOE Transmit Rev. 1 FIR to Ecology	10	12AUG02	23AUG02	0.00
1.01.04.01.03.03.20.08 Permitting and Safety B-BX-BY				
Safety Basis B-BX-BY	115	23MAR00	05SEP00	69,576.80
Provide Borehole/Geology Description	10	23MAR00	05APR00	0.00
Provide Drilling Equipment/Process Description	10	23MAR00	05APR00	0.00
Develop Rad/Tox Source Term	10	23MAR00	05APR00	0.00



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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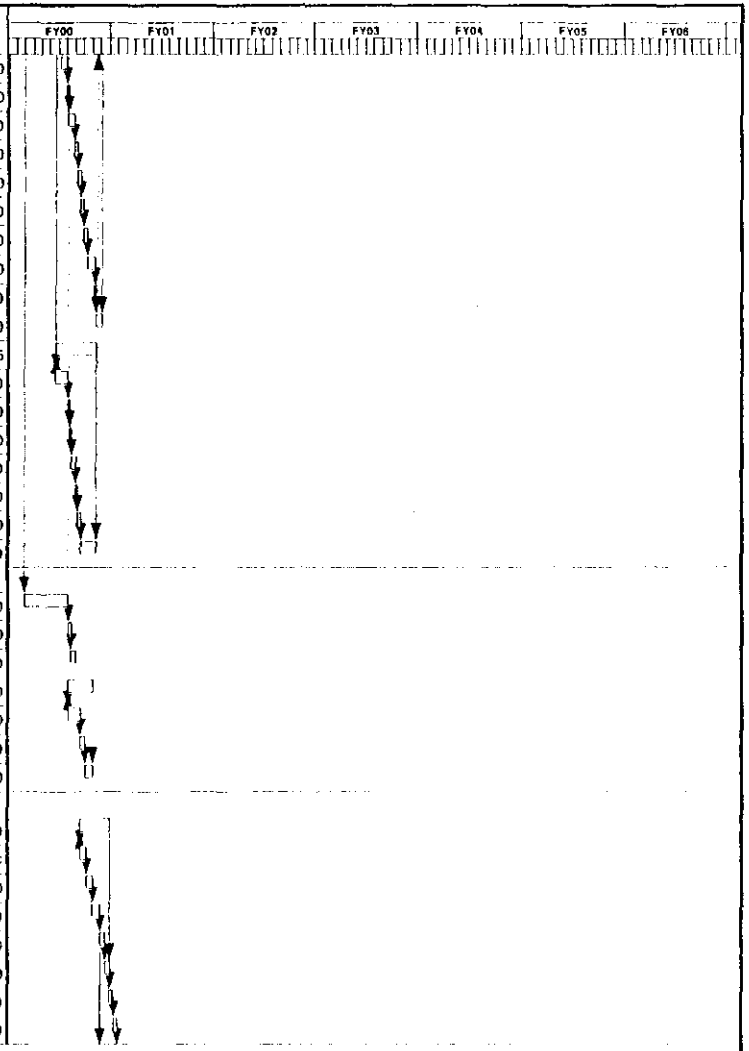
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Prepare Release Calc Document	15	06APR00	26APR00	0.00
Prepare USQ Determination	5	27APR00	03MAY00	0.00
Prepare PHA Document	15	04MAY00	24MAY00	0.00
Define Controls	10	25MAY00	08JUN00	0.00
Prepare AB Change Package	5	09JUN00	15JUN00	0.00
Conduct Peer and Tier I Reviews	10	16JUN00	29JUN00	0.00
Transmit AB Revision Request to DOE	5	30JUN00	10JUL00	0.00
Conduct Tier II/III Reviews	20	11JUL00	07AUG00	0.00
Transmit Authorization Letter/SER	5	08AUG00	14AUG00	0.00
Amend AB Document	15	15AUG00	05SEP00	0.00
Air Permitting	100	23MAR00	14AUG00	17,344.35
Prepare Non Rad NOC	30	23MAR00	03MAY00	0.00
Internal Review	5	04MAY00	10MAY00	0.00
Revise	5	11MAY00	17MAY00	0.00
PHMC/DOE Review	10	18MAY00	01JUN00	0.00
Revise	5	02JUN00	08JUN00	0.00
Issue to Regulators	5	09JUN00	15JUN00	0.00
Regulator Review/Approval	40	16JUN00	14AUG00	0.00
1.01.04.01.03.03.21.01 Subsurface Conditions Description Report T-TX-TY				
Prepare Draft T-TX-TY Data Packages	105	01DEC99*	01MAY00	315,983.50
Review Draft T-TX-TY Data Pkg.	10	02MAY00	15MAY00	0.00
Revise/Issue T-TX-TY Data Pkg	10	16MAY00	30MAY00	0.00
Subsurface Conditions Description Report T-TX-TY	64	02MAY00	02AUG00	126,377.00
Develop Draft SCD Report	34	02MAY00	19JUN00	0.00
Review Draft SCD Report	11	20JUN00	06JUL00	0.00
Incorporate Comments, Prepare Final SCD Report	19	07JUL00	02AUG00	0.00
1.01.04.01.03.03.21.02 Data Quality Objectives T-TX-TY				
Data Quality Objectives T-TX-TY	71	20JUN00	29SEP00	156,705.00
Plan DQO	13	20JUN00	10JUL00	0.00
Conduct DQO Meetings	16	11JUL00	01AUG00	0.00
Prepare Draft DQO Report	21	02AUG00	30AUG00	0.00
Review Draft A DQO Report	10	31AUG00	14SEP00	0.00
Inc. Comments/Prepare Final DQO Report	11	15SEP00	29SEP00	0.00
Decision Makers Briefing/Review Draft C DQO Rpt	10	02OCT00	13OCT00	0.00
Inc. Comments/Prepare Rev 0 DQO Report	11	16OCT00	30OCT00	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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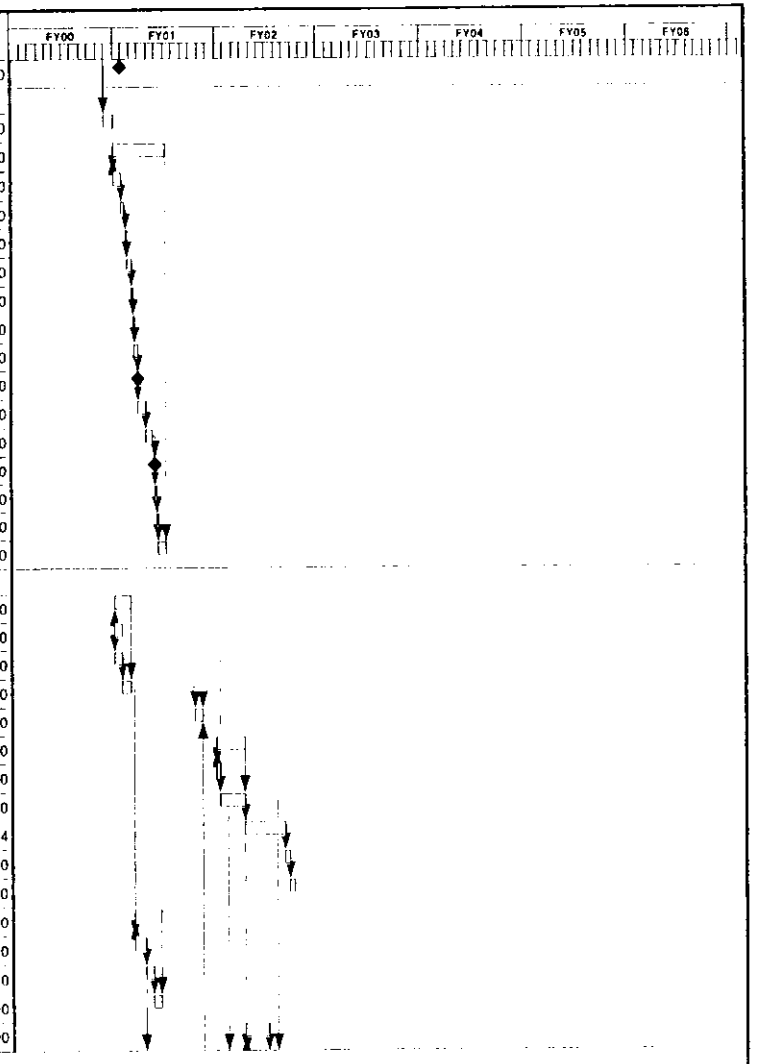
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Issue Rev 0 T-TX-TY DQO Report	0		30OCT00	0.00
1.01.04.01.03.03.21.03 Site Specific Work Plan T-TX-TY				
Prep Internal Draft T-TX-TY Work Plan Addendum	20	01SEP00	29SEP00	24,400.00
Site Specific Work Plan Addendum T-TX-TY	130	02OCT00	09APR01	187,205.00
Prep Internal Draft T-TX-TY Work Plan Addendum	20	02OCT00	27OCT00	0.00
Review Internal Draft T-TX-TY WP Addendum	10	30OCT00	10NOV00	0.00
Inc Comments/Prepare Draft A T-TX-TY WP Addendum	6	13NOV00	20NOV00	0.00
DOE Review Draft A T-TX-TY WP Addendum	10	21NOV00	06DEC00	0.00
Inc. Comments/Prepare Rev 0 T-TX-TY WP Addendum	5	07DEC00	13DEC00	0.00
Transmit Rev 0 T-TX-TY WP Addendum to DOE	5	14DEC00	20DEC00	0.00
DOE Transmit Rev 0 WP Addendum to Ecology	5	21DEC00	29DEC00	0.00
TPA Milestone M-45-54	0		31DEC00*	0.00
Ecology Review Rev 0 T-TX-TY WP Addendum	30	30DEC00	28JAN01	0.00
Inc Ecology Comments/Prepare Rev 1 WP Addendum	15	29JAN01	16FEB01	0.00
Release Rev. 1 T-TX-TY WP Addendum	0		26FEB01	0.00
Transmit Rev 1 T-TX-TY WP Addendum	5	27FEB01	05MAR01	0.00
DOE Transmit Rev 1 WP Addendum to Ecology	5	06MAR01	12MAR01	0.00
Ecology Transmits Approval Letter	20	13MAR01	09APR01	0.00
1.01.04.01.03.03.21.04 Drilling and Sampling T-TX-TY				
1st Borehole, Prep/Planning	42	02OCT00	30NOV00	100,755.00
Modify Contracts, (field/lab)	21	02OCT00*	30OCT00	0.00
1st Borehole, Planning (field/lab)	21	02OCT00	30OCT00	0.00
1st Borehole, Prep Field Procedures & Specs	21	31OCT00	30NOV00	0.00
1st Borehole, Readiness Assessment	21	17JUL01	14AUG01	0.00
1st Borehole, Drilling and Sampling	66	01OCT01	08JAN02	1,018,866.00
1st Borehole, Site Prep	10	01OCT01*	12OCT01	0.00
1st Borehole, Drill and Sample	56	15OCT01	08JAN02	0.00
Prepare 1st Borehole Summary Report	105	09JAN02	06JUN02	52,944.24
Review 1st Borehole Summary Report	10	07JUN02	20JUN02	0.00
Incorporate Comments/Issue Summary Report	10	21JUN02	08JUL02	0.00
1st Borehole, Prep/Planning	63	15DEC00	19MAR01	100,755.00
2nd Borehole, Planning (field/lab)	21	15DEC00	17JAN01	0.00
2nd Borehole, Prep Field Procedures & Specs	21	18JAN01	15FEB01	0.00
2nd Borehole, Readiness Assessment	21	16FEB01	19MAR01	0.00
2nd Borehole, Drill and sample	61	09JAN02	04APR02	1,018,935.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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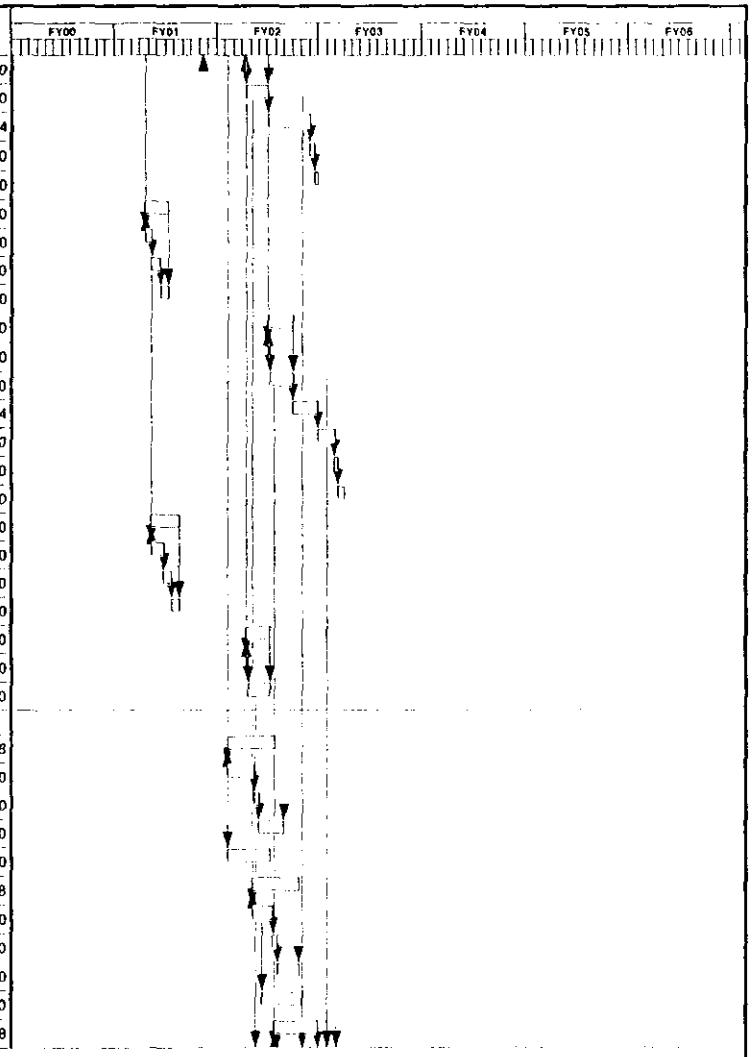
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd Borehole, Site Prep	5	09JAN02	15JAN02	0.00
2nd Borehole, Drill and sample	56	16JAN02	04APR02	0.00
2nd Borehole, Prepare Summary Report	103	05APR02	30AUG02	52,944.24
2nd Borehole, Review Summary Report	10	03SEP02	16SEP02	0.00
Incorporate Comments/Issue Summary Report	10	17SEP02	30SEP02	0.00
3rd Borehole, Prep/Planning	60	18JAN01	12APR01	100,755.00
3rd Borehole, Planning (field/lab)	19	18JAN01*	13FEB01	0.00
3rd Borehole, Prep Field Procedures & Specs	20	14FEB01	14MAR01	0.00
3rd Borehole, Readiness Assessment	21	15MAR01	12APR01	0.00
3rd Borehole, Drill and sample	61	05APR02	01JUL02	1,018,935.00
3rd Borehole, Site Prep	5	05APR02	11APR02	0.00
3rd Borehole, Drill and sample	56	12APR02	01JUL02	0.00
3rd Borehole, Prepare Summary Report	62	02JUL02	30SEP02	31,819.04
3rd Borehole, Prepare Summary Report	41	01OCT02	26NOV02	21,125.20
3rd Borehole, Review Summary Report	10	27NOV02	12DEC02	0.00
Incorporate Comments/Issue Summary Report	10	13DEC02	30DEC02	0.00
1st Field Characterization, Planning/Prep	71	14FEB01	24MAY01	0.00
1st Field Characterization, Planning (field/lab)	30	14FEB01	28MAR01	0.00
1st Field Character, Prep Field Procedures/Specs	21	29MAR01	26APR01	0.00
1st Field Characterization, Readiness Assessment	20	27APR01	24MAY01	0.00
1st Field Characterization, Drill and Sample	61	16JAN02	11APR02	637,550.80
1st Field Characterization, Site Prep	5	16JAN02	22JAN02	0.00
1st Field Characterization, Drill and Sample	56	23JAN02	11APR02	0.00
1.01.04.01.03.03.21.05 Laboratory Analysis T-TX-TY				
1st Borehole, Lab Analysis	112	12NOV01	25APR02	453,898.88
1st Borehole, Screening Lab Analysis	61	12NOV01	12FEB02	0.00
1st Borehole, Select Samples for Rad/Chem Analys	10	13FEB02	27FEB02	0.00
1st Borehole, Rad/Chem Analysis	65	28FEB02	30MAY02	0.00
1st Borehole, Hydraulic Properties Analysis	102	12NOV01	11APR02	0.00
2nd Borehole, Lab Analysis	116	08FEB02	25JUL02	453,898.88
2nd Borehole, Screening Lab Analysis	51	08FEB02	22APR02	0.00
2nd Borehole, Select Samples for Rad/Chem Analys	10	23APR02	06MAY02	0.00
2nd Borehole, Rad/Chem Analysis	55	07MAY02	25JUL02	0.00
2nd Borehole, Hydraulic Properties Analysis	102	11MAR02	02AUG02	0.00
3rd Borehole, Lab Analysis	108	26APR02	30SEP02	453,898.88



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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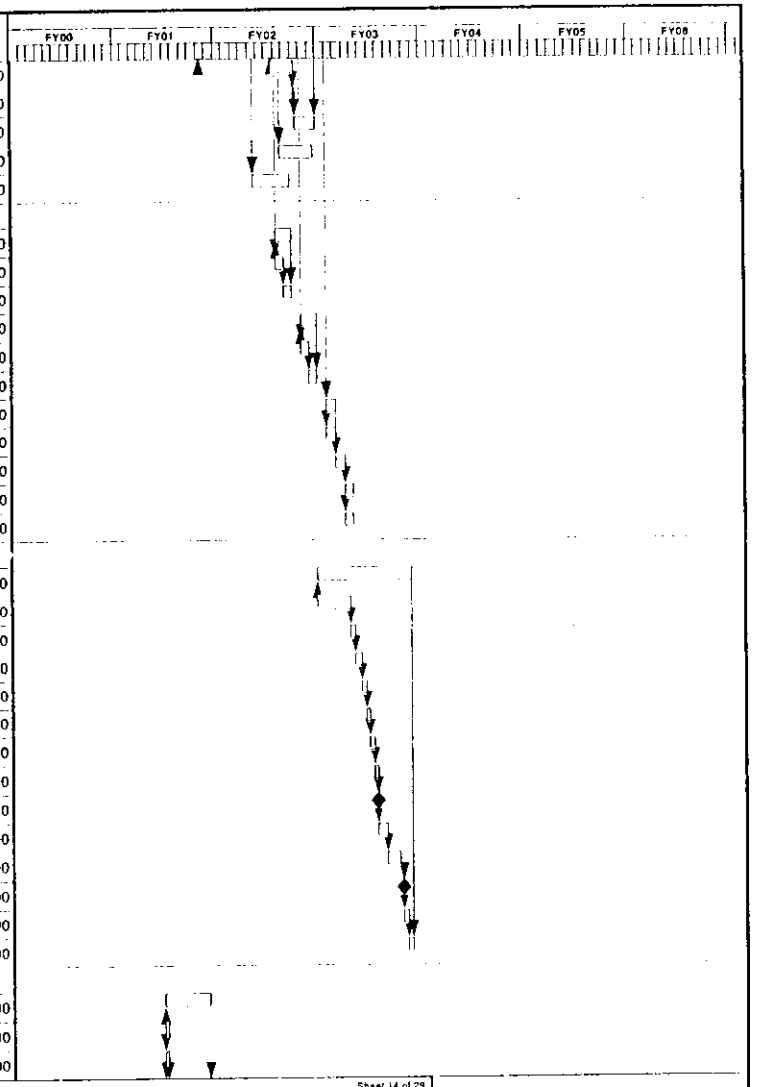
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
3rd Borehole, Screening Lab Analysis	51	26APR02	10JUL02	0.00
3rd Borehole, Select Samples for Rad/Chem Analys	5	11JUL02	17JUL02	0.00
3rd Borehole, Rad/Chem Analysis	52	18JUL02	30SEP02	0.00
3rd Borehole, Hydraulic Properties Analysis	79	24MAY02	17SEP02	0.00
1st Field Characterization, Rad/Chem Analysis	88	20FEB02	24JUN02	201,433.90
1.01.04.01.03.03.21.06 Decommisioning and Waste Disposal T-TX-TY				
1st Borehole, Decommssioning & Waste Disposal	42	06MAY02	03JUL02	178,456.00
1st Borehole, Decommission	21	06MAY02	04JUN02	0.00
1st Borehole, Dispose of Waste	21	05JUN02	03JUL02	0.00
1st Borehole, Decommssioning & Waste Disposal	40	05AUG02	30SEP02	178,456.00
2nd Borehole, Decommission	21	05AUG02	03SEP02	0.00
2nd Borehole, Dispose of Waste	19	04SEP02	30SEP02	0.00
3rd Borehole, Decommission	23	31OCT02	04DEC02	103,450.40
3rd Borehole, Dispose of Waste	21	31OCT02	02DEC02	75,005.60
1st Characterization, Decommission	22	05DEC02	08JAN03	0.00
1st Characterization, Dispose of Waste	20	09JAN03	05FEB03	0.00
1st Characterization, Demobilize	20	09JAN03	05FEB03	0.00
1.01.04.01.03.03.21.07 Field Investigation Reports T-TX-TY				
FIR T-TX-TY (Risk Assessment)	226	01OCT02	25AUG03	460,940.40
Prepare Internal Draft FIR	76	01OCT02*	21JAN03	0.00
Review Internal Draft FIR	15	22JAN03	11FEB03	0.00
Inc. Comments, Prepare Draft A FIR	15	12FEB03	05MAR03	0.00
DOE Review Rev A FIR	10	06MAR03	19MAR03	0.00
Incorp. Comments/Prep Rev 0 FIR	10	20MAR03	02APR03	0.00
Transmit Rev 0 FIR to DOE	10	03APR03	16APR03	0.00
DOE Transmit Rev 0 FIR to Ecology	10	17APR03	30APR03	0.00
TPA Milestone M-45-55-T03	0		30APR03*	0.00
Ecology Review Rev 0 FIR for T-TX-TY	30	01MAY03	30MAY03	0.00
Incorp Ecology Comments, Prep Rev 1 FIR	30	02JUN03	15JUL03	0.00
Release Rev. 1 FIR	0		28JUL03	0.00
Transmit Rev 1 FIR to DOE	10	29JUL03	11AUG03	0.00
DOE Transmit Rev. 1 FIR to Ecology	10	12AUG03	25AUG03	0.00
1.01.04.01.03.03.21.08 Permitting and Safety T-TX-TY				
Safety Basis B-BX-BY	115	26MAR01	05SEP01	69,576.80
Provide Borehole/Geology Description	10	26MAR01*	06APR01	0.00
Provide Drilling Equipment/Process Description	10	26MAR01	06APR01	0.00



Project Start 01OCT97
Project Finish 05DEC69
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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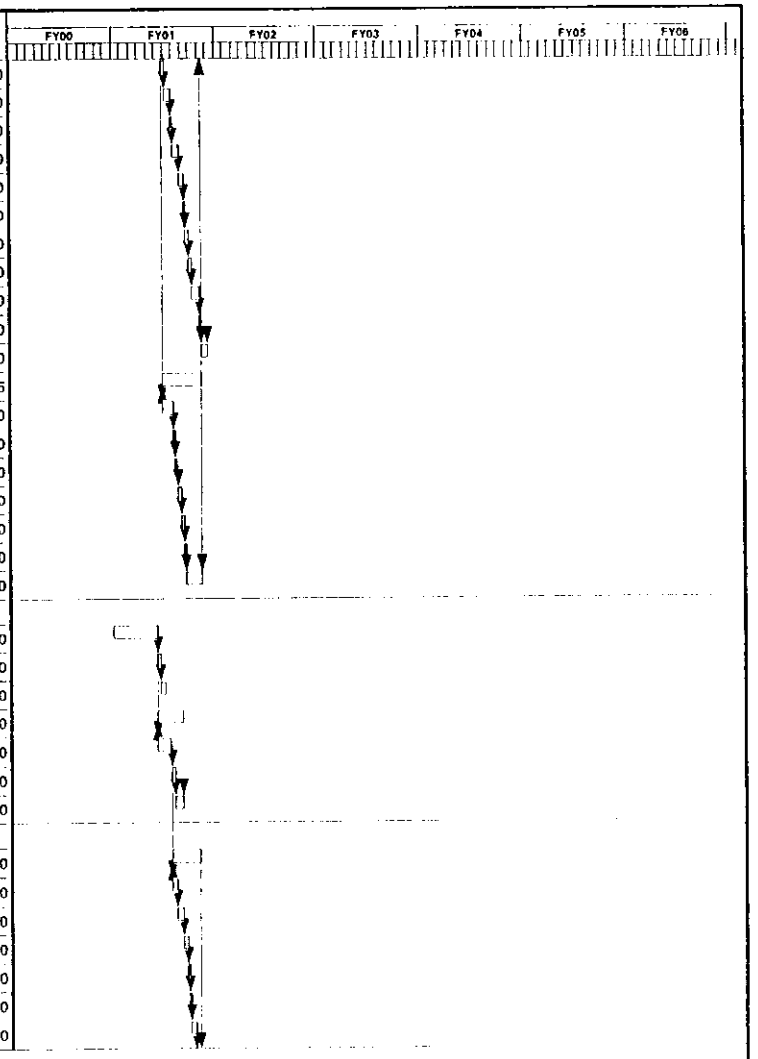
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Develop Rad/Tox Source Term	10	26MAR01	06APR01	0.00
Prepare Release Calc Document	15	09APR01	27APR01	0.00
Prepare USQ Determination	5	30APR01	04MAY01	0.00
Prepare PHA Document	15	07MAY01	25MAY01	0.00
Define Controls	10	29MAY01	11JUN01	0.00
Prepare AB Change Package	5	12JUN01	18JUN01	0.00
Conduct Peer and Tier 1 Reviews	10	19JUN01	02JUL01	0.00
Transmit AB Revision Request to DOE	5	03JUL01	10JUL01	0.00
Conduct Tier II/III Reviews	20	11JUL01	07AUG01	0.00
Transmit Authorization Letter/SER	5	08AUG01	14AUG01	0.00
Amend AB Document	15	15AUG01	05SEP01	0.00
Air Permitting	100	26MAR01	14AUG01	17,344.35
Prepare Non Rad NOC	30	26MAR01	04MAY01	0.00
Internal Review	5	07MAY01	11MAY01	0.00
Revise	5	14MAY01	18MAY01	0.00
PHMC/DOE Review	10	21MAY01	04JUN01	0.00
Revise	5	05JUN01	11JUN01	0.00
Issue to Regulators	5	12JUN01	18JUN01	0.00
Regulator Review/Approval	40	19JUN01	14AUG01	0.00
1.01.04.01.03.03.22.01 Subsurface Conditions Description Report WMA U				
Prepare Draft WMA U Data Packages	105	02OCT00*	05MAR01	315,983.50
Review Draft WMA U Data Pkg.	10	06MAR01	19MAR01	0.00
Revise/Issue WMA U Data Pkg	10	20MAR01	02APR01	0.00
Subsurface Conditions Description Report T-TX-TY	64	06MAR01	04JUN01	126,377.00
Develop Draft SCD Report	34	06MAR01	20APR01	0.00
Review Draft SCD Report	11	23APR01	07MAY01	0.00
Incorporate Comments, Prepare Final SCD Report	19	08MAY01	04JUN01	0.00
1.01.04.01.03.03.22.02 Data Quality Objectives WMA U				
Data Quality Objectives WMA U	71	23APR01	01AUG01	156,705.00
Plan DQO	13	23APR01	09MAY01	0.00
Conduct DQO Meetings	16	10MAY01	01JUN01	0.00
Prepare Draft A DQO Report	11	04JUN01	18JUN01	0.00
Tech Team Review Draft A DQO Report	5	19JUN01	25JUN01	0.00
Inc. Comments/Prepare Draft B DQO Report	5	26JUN01	02JUL01	0.00
Senior Tech Team Review Draft B DQO Report	10	03JUL01	17JUL01	0.00



Project Start	01OCT97	Early Bar
Project Finish	06DEC99	Progress Bar
Data Date	01OCT99	Critical Activity
Run Date	05AUG99	

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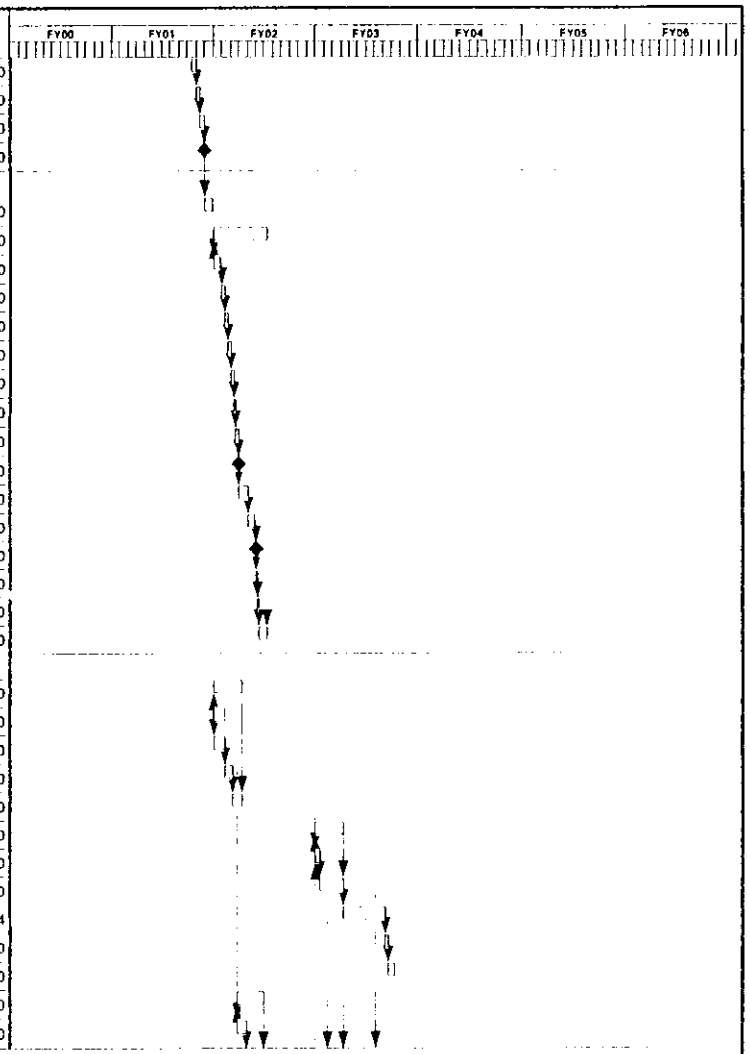
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Inc. Comments/Prepare Draft C DQO Report	11	18JUL01	01AUG01	0.00
Decision Makers Briefing/Review Draft C DQO Rpt	10	02AUG01	15AUG01	0.00
Inc. Comments/Prepare Rev 0 DQO Report	11	16AUG01	30AUG01	0.00
Issue Rev 0 WMA U DQO Report	0		30AUG01	0.00
1.01.04.01.03.03.22.03 Site Specific Work Plan WMA U				
Prepare Draft A WMA U Work Plan Addendum	20	31AUG01	28SEP01	24,400.00
Site Specific Work Plan Addendum WMA U	130	01OCT01	09APR02	187,205.00
Prepare Draft A WMA U Work Plan Addendum	20	01OCT01	26OCT01	0.00
Internal Review Draft A WMA U WP Addendum	10	29OCT01	09NOV01	0.00
Inc Comments/Prepare Draft B WMA U WP Addendum	6	12NOV01	19NOV01	0.00
DOE Review Draft B WMA U WP Addendum	10	20NOV01	05DEC01	0.00
Inc. Comments/Prepare Rev 0 WMA U WP Addendum	5	06DEC01	12DEC01	0.00
Transmit Rev 0 WMA U WP Addendum to DOE	5	13DEC01	19DEC01	0.00
DOE Transmit Draft 0 WP Addendum to Ecology	5	20DEC01	31DEC01	0.00
TPA Milestone M-45-54	0		31DEC01*	0.00
Ecology Review Draft 0 WMA U WP Addendum	30	01JAN02	30JAN02	0.00
Inc Ecology Comments/Prepare Rev 1 WP Addendum	15	31JAN02	21FEB02	0.00
Release Rev. 1 WMA U WP Addendum	0		28FEB02	0.00
Transmit Rev. 1 WMA U WP Addendum	5	01MAR02	07MAR02	0.00
DOE Transmit Rev 1 WP Addendum to Ecology	5	08MAR02	14MAR02	0.00
Ecology Transmits Approval Letter	20	15MAR02	11APR02	0.00
1.01.04.01.03.03.22.04 Drilling and Sampling WMA U				
1st Borehole, Prep/Planning	69	01OCT01	11JAN02	100,755.00
Modify Contracts, (field/lab)	29	01OCT01*	08NOV01	0.00
1st Borehole, Planning (field/lab)	29	01OCT01	08NOV01	0.00
1st Borehole, Prep Field Procedures & Specs	19	09NOV01	07DEC01	0.00
1st Borehole, Readiness Assessment	21	10DEC01	11JAN02	0.00
1st Borehole, Drilling and Sampling	66	01OCT02	07JAN03	1,018,866.00
1st Borehole, Site Prep	10	01OCT02*	14OCT02	0.00
1st Borehole, Drill and Sample	56	15OCT02	07JAN03	0.00
1st Borehole, Prepare Summary Report	105	08JAN03	05JUN03	52,944.24
1st Borehole, Review Summary Report	10	06JUN03	19JUN03	0.00
Incorporate Comments/Issue Summary Report	10	20JUN03	07JUL03	0.00
2nd Borehole, Planning/Prep	63	27DEC01	27MAR02	100,217.60
2nd Borehole, Planning (field/lab)	21	27DEC01	25JAN02	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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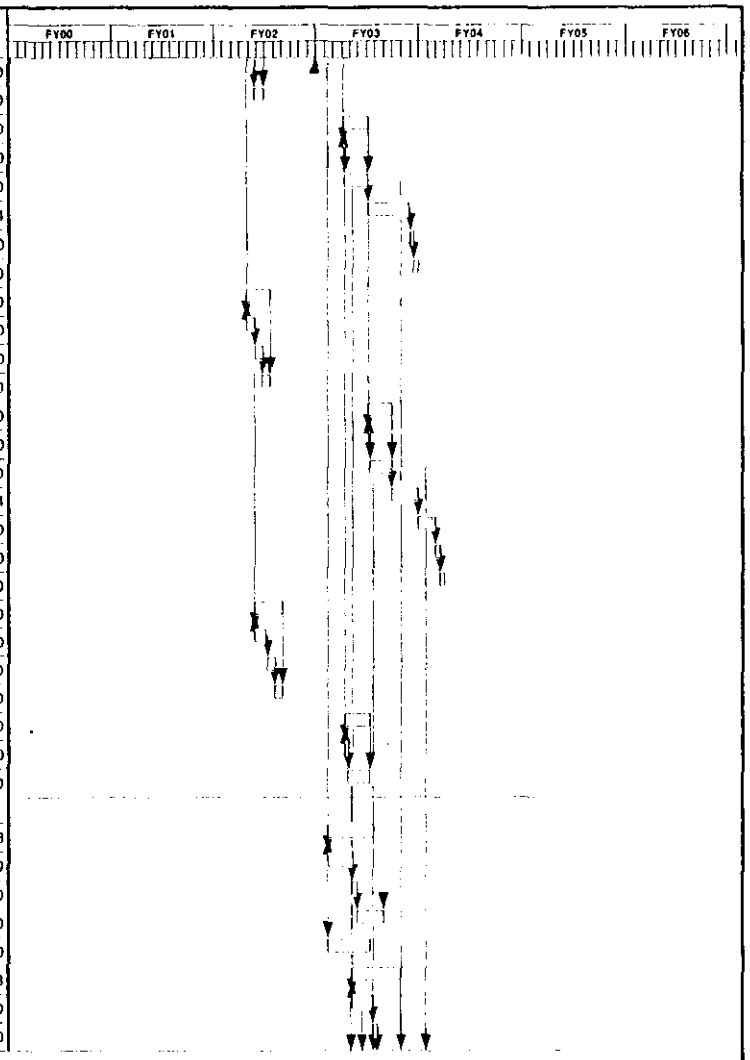
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd Borehole, Prep Field Procedures & Specs	21	28JAN02	26FEB02	0.00
2nd Borehole, Readiness Assessment	21	27FEB02	27MAR02	0.00
2nd Borehole, Drill and sample	61	08JAN03	03APR03	1,018,935.00
2nd Borehole, Site Prep	5	08JAN03	14JAN03	0.00
2nd Borehole, Drill and sample	56	15JAN03	03APR03	0.00
2nd Borehole, Prepare Summary Report	103	04APR03	29AUG03	52,944.24
2nd Borehole, Review Summary Report	10	02SEP03	15SEP03	0.00
Incorporate Comments/Issue Summary Report	10	16SEP03	29SEP03	0.00
3rd Borehole, Prep/Planning	60	28JAN02	22APR02	100,755.00
3rd Borehole, Planning (field/lab)	19	28JAN02*	22FEB02	0.00
3rd Borehole, Prep Field Procedures & Specs	20	25FEB02	22MAR02	0.00
3rd Borehole, Readiness Assessment	21	25MAR02	22APR02	0.00
3rd Borehole, Drill and sample	61	04APR03	30JUN03	1,018,935.00
3rd Borehole, Site Prep	5	04APR03	10APR03	0.00
3rd Borehole, Drill and sample	56	11APR03	30JUN03	0.00
3rd Borehole, Prepare Summary Report	63	01JUL03	30SEP03	31,819.04
3rd Borehole, Prepare Summary Report	42	01OCT03	01DEC03	21,125.20
3rd Borehole, Review Summary Report	10	02DEC03	15DEC03	0.00
Incorporate Comments/Issue Summary Report	10	16DEC03	31DEC03	0.00
1st Field Characterization, Planning/Prep	71	25FEB02	04JUN02	0.00
1st Field Characterization, Planning (field/lab)	30	25FEB02	05APR02	0.00
1st Field Character, Prep Field Procedures/Specs	21	08APR02	06MAY02	0.00
1st Field Characterization, Readiness Assessment	20	07MAY02	04JUN02	0.00
1st Field Characterization, Drill and Sample	61	15JAN03	10APR03	637,550.80
1st Field Characterization, Site Prep	5	15JAN03	21JAN03	0.00
1st Field Characterization, Drill and Sample	56	22JAN03	10APR03	0.00
1.01.04.01.03.03.22.05 Laboratory Analysis WMA U				
1st Borehole, Lab Analysis	112	12NOV02	24APR03	453,898.88
1st Borehole, Screening Lab Analysis	61	12NOV02	11FEB03	0.00
1st Borehole, Select Samples for Rad/Chem Analys	10	12FEB03	26FEB03	0.00
1st Borehole, Rad/Chem Analysis	65	27FEB03	29MAY03	0.00
1st Borehole, Hydraulic Properties Analysis	102	12NOV02	10APR03	0.00
2nd Borehole, Lab Analysis	116	12FEB03	29JUL03	453,898.88
2nd Borehole, Screening Lab Analysis	51	12FEB03	24APR03	0.00
2nd Borehole, Select Samples for Rad/Chem Analys	10	25APR03	08MAY03	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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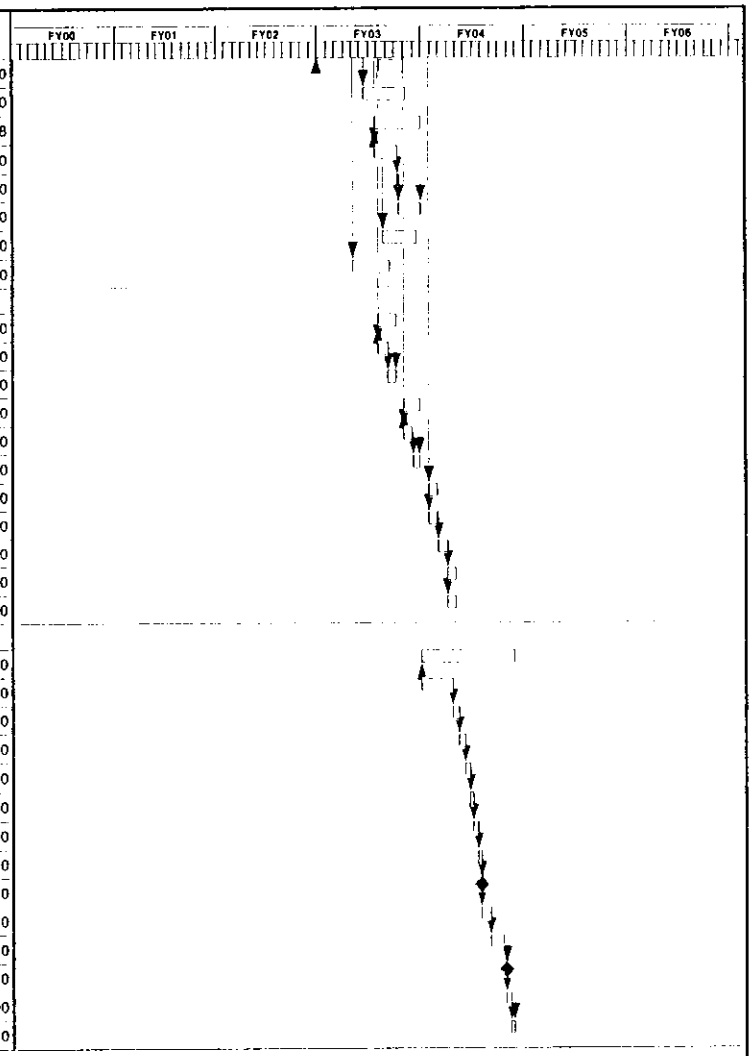
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd Borehole, Rad/Chem Analysis	55	09MAY03	29JUL03	0.00
2nd Borehole, Hydraulic Properties Analysis	102	13MAR03	06AUG03	0.00
3rd Borehole, Lab Analysis	108	25APR03	29SEP03	453,898.88
3rd Borehole, Screening Lab Analysis	51	25APR03	09JUL03	0.00
3rd Borehole, Select Samples for Rad/Chem Analys	5	10JUL03	16JUL03	0.00
3rd Borehole, Rad/Chem Analysis	52	17JUL03	29SEP03	0.00
3rd Borehole, Hydraulic Properties Analysis	79	23MAY03	16SEP03	0.00
1st Field Characterization, Rad/Chem Analysis	88	05FEB03	10JUN03	201,433.90
1.01.04.01.03.03.22.06 Decommissioning and Waste Disposal WMA U				
1st Borehole, Decommssioning & Waste Disposal	42	05MAY03	02JUL03	178,456.00
1st Borehole, Decommission	21	05MAY03	03JUN03	0.00
1st Borehole, Dispose of Waste	21	04JUN03	02JUL03	0.00
1st Borehole, Decommssioning & Waste Disposal	40	01AUG03	26SEP03	178,456.00
2nd Borehole, Decommission	21	01AUG03	29AUG03	0.00
2nd Borehole, Dispose of Waste	19	02SEP03	26SEP03	0.00
3rd Borehole, Decommission	22	28OCT03	26NOV03	103,450.40
3rd Borehole, Dispose of Waste	21	28OCT03	25NOV03	75,005.60
1st Characterization, Decommission	22	01DEC03	02JAN04	0.00
1st Characterization, Dispose of Waste	20	05JAN04	30JAN04	0.00
1st Characterization, Demobilize	20	05JAN04	30JAN04	0.00
1.01.04.01.03.03.22.07 Field Investigation Reports WMA U				
FIR WMA U (Risk Assessment)	226	01OCT03	24AUG04	460,940.40
Prepare Internal Draft FIR	76	01OCT03*	21JAN04	0.00
Review Internal Draft FIR	15	22JAN04	11FEB04	0.00
Inc. Comments, Prepare Draft A FIR	15	12FEB04	04MAR04	0.00
DOE Review Rev A FIR	10	05MAR04	18MAR04	0.00
Incorp. Comments/Prep Rev 0 FIR	10	19MAR04	01APR04	0.00
Transmit Rev 0 FIR to DOE	10	02APR04	15APR04	0.00
DOE Transmit Rev 0 FIR to Ecology	10	16APR04	29APR04	0.00
Ecology Receive FIR	0		29APR04*	0.00
Ecology Review Rev 0 FIR for WMA U	30	30APR04	29MAY04	0.00
Incorp Ecology Comments, Prep Rev 1 FIR	30	01JUN04	14JUL04	0.00
Release Rev. 1 FIR	0		27JUL04	0.00
Transmit Rev 1 FIR to DOE	10	28JUL04	10AUG04	0.00
DOE Transmit Rev. 1 FIR to Ecology	10	11AUG04	24AUG04	0.00



Project Start 01OCT97
Project Finish 06DEC49
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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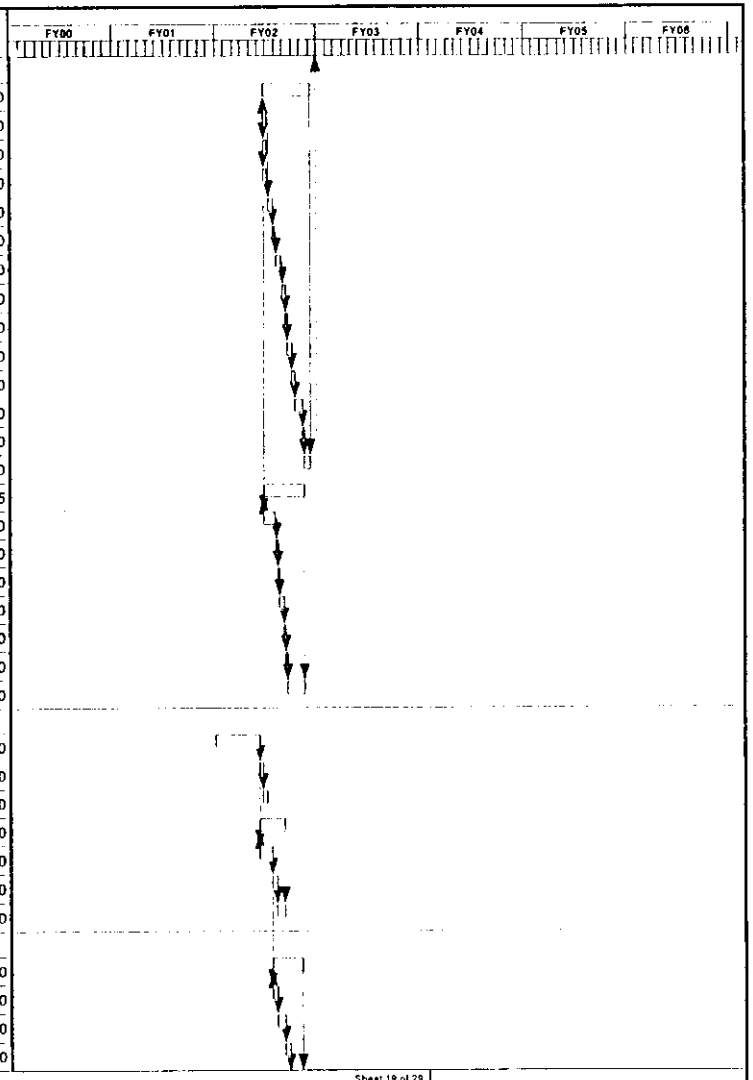
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04.01.03.03.22.08 Safety and Permitting WMA U				
Safety Basis WMA U	115	25MAR02	05SEP02	69,576.80
Provide Borehole/Geology Description	10	25MAR02*	05APR02	0.00
Provide Drilling Equipment/Process Description	10	25MAR02	05APR02	0.00
Develop Rad/Tox Source Term	10	25MAR02	05APR02	0.00
Prepare Release Calc Document	15	08APR02	26APR02	0.00
Prepare USQ Determination	5	29APR02	03MAY02	0.00
Prepare PHA Document	15	06MAY02	24MAY02	0.00
Define Controls	10	28MAY02	10JUN02	0.00
Prepare AB Change Package	5	11JUN02	17JUN02	0.00
Conduct Peer and Tier 1 Reviews	10	18JUN02	01JUL02	0.00
Transmit AB Revision Request to DOE	5	02JUL02	10JUL02	0.00
Conduct Tier II/III Reviews	20	11JUL02	07AUG02	0.00
Transmit Authorization Letter/SER	5	08AUG02	14AUG02	0.00
Amend AB Document	15	15AUG02	05SEP02	0.00
Air Permitting	100	25MAR02	14AUG02	17,344.35
Prepare Non Rad NOC	30	25MAR02	03MAY02	0.00
Internal Review	5	06MAY02	10MAY02	0.00
Revise	5	13MAY02	17MAY02	0.00
PHMC/DOE Review	10	20MAY02	03JUN02	0.00
Revise	5	04JUN02	10JUN02	0.00
Issue to Regulators	5	11JUN02	17JUN02	0.00
Regulator Review/Approval	40	18JUN02	14AUG02	0.00
1.01.04.01.03.03.23.01 Subsurface Conditions Description Report A-AX				
Prepare Draft A-AX Data Packages	105	01OCT01*	05MAR02	315,983.50
Review Draft A-AX Data Pkg	10	06MAR02	19MAR02	0.00
Revise/Issue A-AX Data Pkg	10	20MAR02	02APR02	0.00
Subsurface Conditions Description Report T-TX-TY	64	06MAR02	04JUN02	126,377.00
Develop Draft SCD Report	34	06MAR02	22APR02	0.00
Review Draft SCD Report	11	23APR02	07MAY02	0.00
Incorporate Comments, Prepare Final SCD Report	19	08MAY02	04JUN02	0.00
1.01.04.01.03.03.23.02 Data Quality Objectives A-AX				
Data Quality Objectives A-AX	71	23APR02	02AUG02	156,705.00
Plan DQO	13	23APR02	09MAY02	0.00
Conduct DQO Meetings	16	10MAY02	03JUN02	0.00
Prepare Draft A DQO Report	11	04JUN02	18JUN02	0.00



Project Start 01OCT97
Project Finish 08DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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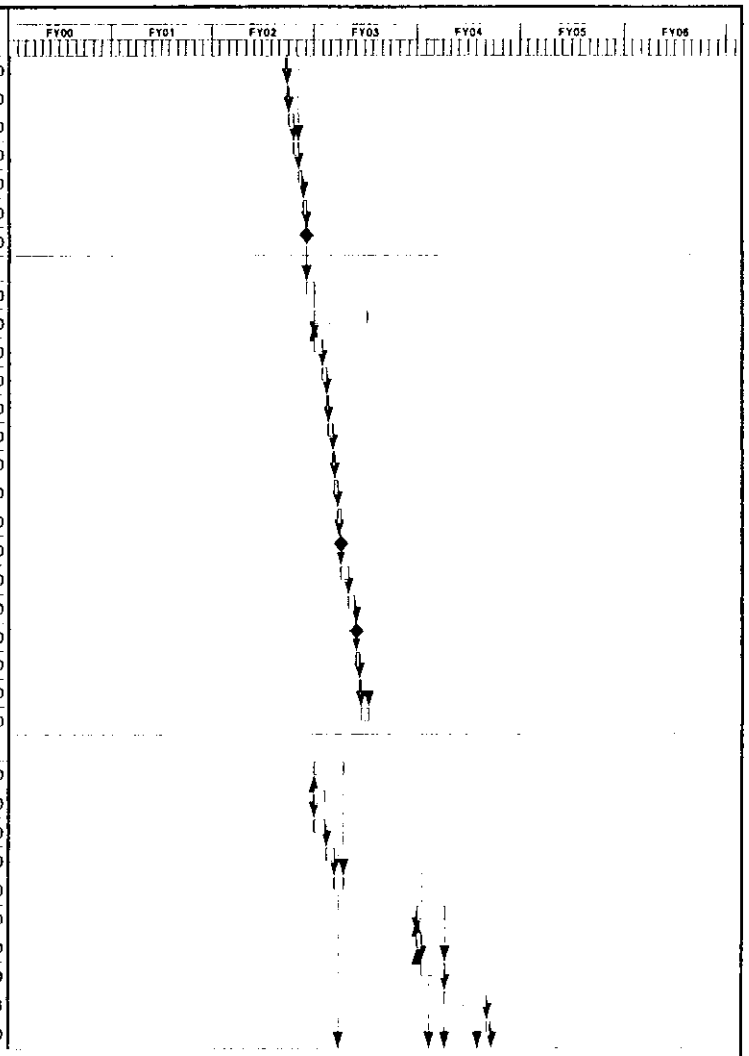
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Tech Team Review Draft A DQO Report	5	19JUN02	25JUN02	0.00
Inc. Comments/Prepare Draft B DQO Report	5	26JUN02	02JUL02	0.00
Senior Tech Team Review Draft B DQO Report	10	03JUL02	18JUL02	0.00
Inc. Comments/Prepare Draft C DQO Report	11	19JUL02	02AUG02	0.00
Decision Makers Briefing/Review Draft C DQO Rpt	10	05AUG02	16AUG02	0.00
Inc. Comments/Prepare Rev 0 DQO Report	11	19AUG02	03SEP02	0.00
Issue Rev 0 A-AX DQO Report	0		03SEP02	0.00
1.01.04.01.03.03.23.03 Site Specific Work Plan A-AX				
Prepare Draft A A-AX Work Plan Addendum	19	04SEP02	30SEP02	24,400.00
Site Specific Work Plan Addendum A-AX	130	01OCT02	08APR03	187,205.00
Prepare Draft A A-AX Work Plan Addendum	20	01OCT02	28OCT02	0.00
Internal Review Draft A A-AX WP Addendum	10	29OCT02	11NOV02	0.00
Inc Comments/Prepare Draft B A-AX WP Addendum	6	12NOV02	19NOV02	0.00
DOE Review Draft B A-AX WP Addendum	10	20NOV02	05DEC02	0.00
Inc. Comments/Prepare Rev 0 A-AX WP Addendum	5	06DEC02	12DEC02	0.00
Transmit Rev 0 A-AX WP Addendum to DOE	5	13DEC02	19DEC02	0.00
DOE Transmit Draft 0 WP Addendum to Ecology	5	20DEC02	30DEC02	0.00
TPA Milestone M-45-54	0		30DEC02*	0.00
Ecology Review Draft 0 A-AX WP Addendum	30	31DEC02	29JAN03	0.00
Inc Ecology Comments/Prepare Rev 1 WP Addendum	15	30JAN03	20FEB03	0.00
Release Rev. 1 A-AX WP Addendum	0		27FEB03	0.00
Transmit Rev 1 A-AX WP Addendum	5	28FEB03	06MAR03	0.00
DOE Transmit Rev 1 WP Addendum to Ecology	5	07MAR03	13MAR03	0.00
Ecology Transmits Approval Letter	20	14MAR03	10APR03	0.00
1.01.04.01.03.03.23.04 Drilling and Sampling A-AX				
1st Borehole, Prep/Planning	69	01OCT02	10JAN03	100,755.00
Modify Contracts, (field/lab)	29	01OCT02*	08NOV02	0.00
1st Borehole, Planning (field/lab)	29	01OCT02	08NOV02	0.00
1st Borehole, Prep Field Procedures & Specs	19	11NOV02	09DEC02	0.00
1st Borehole, Readiness Assessment	21	10DEC02	10JAN03	0.00
1st Borehole, Drilling and Sampling	66	01OCT03	07JAN04	1,018,866.00
1st Borehole, Site Prep	10	01OCT03*	14OCT03	0.00
1st Borehole, Drill and Sample	56	15OCT03	07JAN04	0.00
1st Borehole, Prepare Summary Report	105	08JAN04	04JUN04	52,944.24
1st Borehole, Review Summary Report	10	07JUN04	18JUN04	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

VZCC

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LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

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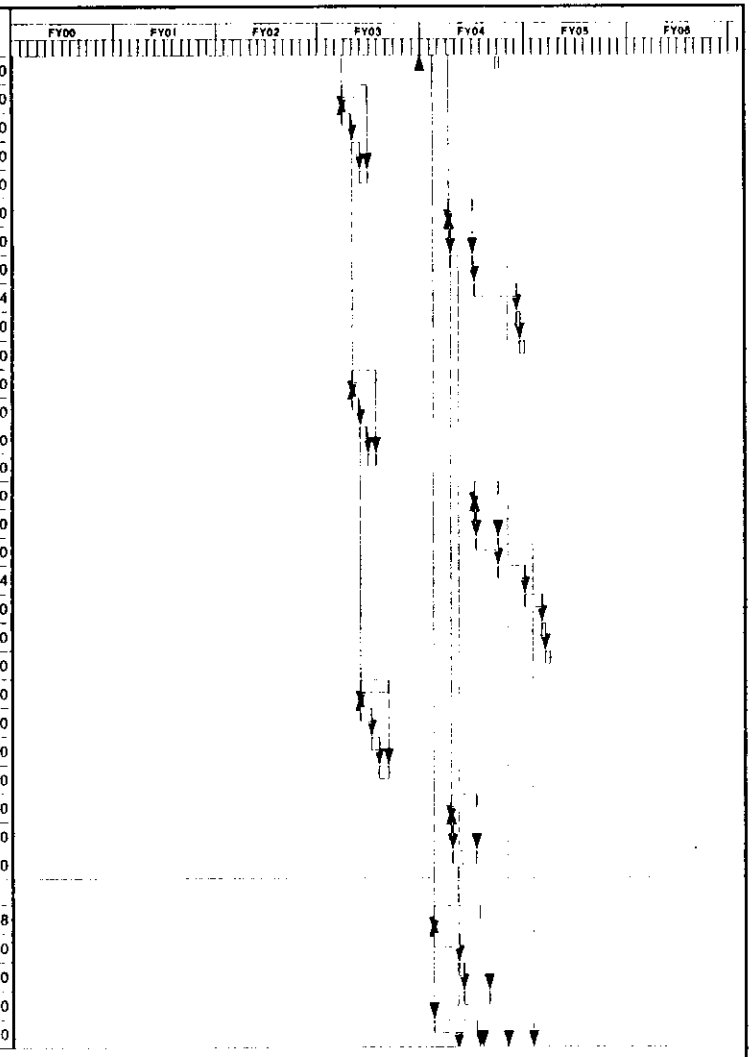
Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Incorporate Comments/Issue Summary Report	10	21JUN04	02JUL04	0.00
2nd Borehole, Planning/Prep	63	26DEC02	26MAR03	100,217.60
2nd Borehole, Planning (field/lab)	21	26DEC02	24JAN03	0.00
2nd Borehole, Prep Field Procedures & Specs	21	27JAN03	25FEB03	0.00
2nd Borehole, Readiness Assessment	21	26FEB03	26MAR03	0.00
2nd Borehole, Drill and sample	61	08JAN04	02APR04	1,018,935.00
2nd Borehole, Site Prep	5	08JAN04	14JAN04	0.00
2nd Borehole, Drill and sample	56	15JAN04	02APR04	0.00
2nd Borehole, Prepare Summary Report	105	05APR04	01SEP04	52,944.24
2nd Borehole, Review Summary Report	10	02SEP04	16SEP04	0.00
Incorporate Comments/Issue Summary Report	10	17SEP04	30SEP04	0.00
3rd Borehole, Prep/Planning	60	27JAN03	21APR03	100,755.00
3rd Borehole, Planning (field/lab)	19	27JAN03	21FEB03	0.00
3rd Borehole, Prep Field Procedures & Specs	20	24FEB03	21MAR03	0.00
3rd Borehole, Readiness Assessment	21	24MAR03	21APR03	0.00
3rd Borehole, Drill and sample	61	05APR04	29JUN04	1,018,935.00
3rd Borehole, Site Prep	5	05APR04	09APR04	0.00
3rd Borehole, Drill and sample	56	12APR04	29JUN04	0.00
3rd Borehole, Prepare Summary Report	64	30JUN04	30SEP04	31,819.04
3rd Borehole, Prepare Summary Report	41	01OCT04	30NOV04	21,125.20
3rd Borehole, Review Summary Report	10	01DEC04	14DEC04	0.00
Incorporate Comments/Issue Summary Report	10	15DEC04	30DEC04	0.00
1st Field Characterization, Planning/Prep	71	24FEB03	03JUN03	0.00
1st Field Characterization, Planning (field/lab)	30	24FEB03	04APR03	0.00
1st Field Character, Prep Field Procedures/Specs	21	07APR03	05MAY03	0.00
1st Field Characterization, Readiness Assessment	20	06MAY03	03JUN03	0.00
1st Field Characterization, Drill and Sample	61	15JAN04	09APR04	637,550.80
1st Field Characterization, Site Prep	5	15JAN04	21JAN04	0.00
1st Field Characterization, Drill and Sample	56	22JAN04	09APR04	0.00
1.01.04.01.03.03.23.05 Laboratory Analysis A-AX				
1st Borehole, Lab Analysis	112	12NOV03	23APR04	453,898.88
1st Borehole, Screening Lab Analysis	61	12NOV03	11FEB04	0.00
1st Borehole, Select Samples for Rad/Chem Analys	10	12FEB04	26FEB04	0.00
1st Borehole, Rad/Chem Analysis	65	27FEB04	27MAY04	0.00
1st Borehole, Hydraulic Properties Analysis	102	12NOV03	09APR04	0.00



Project Start 01OCT97
Project Finish 08DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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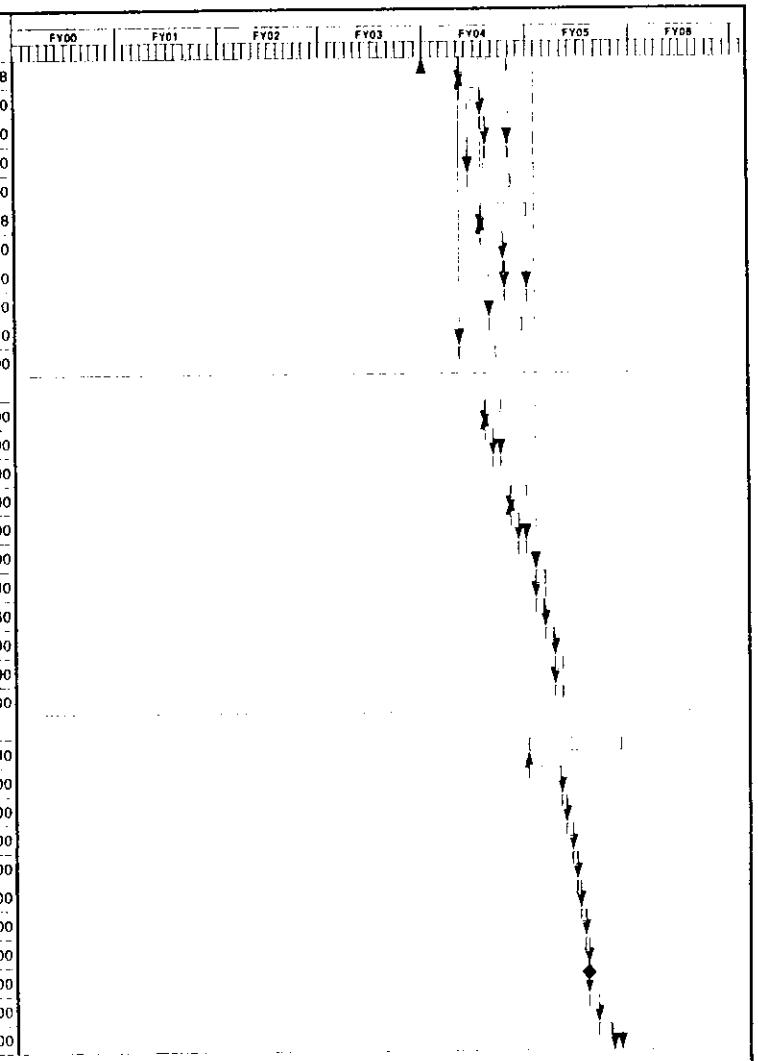
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
2nd Borehole, Lab Analysis	116	12FEB04	28JUL04	453,898.88
2nd Borehole, Screening Lab Analysis	51	12FEB04	23APR04	0.00
2nd Borehole, Select Samples for Rad/Chem Analys	10	26APR04	07MAY04	0.00
2nd Borehole, Rad/Chem Analysis	55	10MAY04	28JUL04	0.00
2nd Borehole, Hydraulic Properties Analysis	102	12MAR04	05AUG04	0.00
3rd Borehole, Lab Analysis	108	26APR04	28SEP04	453,898.88
3rd Borehole, Screening Lab Analysis	51	26APR04	08JUL04	0.00
3rd Borehole, Select Samples for Rad/Chem Analys	5	09JUL04	15JUL04	0.00
3rd Borehole, Rad/Chem Analysis	52	16JUL04	28SEP04	0.00
3rd Borehole, Hydraulic Properties Analysis	79	24MAY04	15SEP04	0.00
1st Field Characterization, Rad/Chem Analysis	88	05FEB04	09JUN04	201,433.90
1.01.04.01.03.03.23.06 Decommissioning & Waste Disposal A-AX				
1st Borehole, Decommssioning & Waste Disposal	42	04MAY04	01JUL04	178,456.00
1st Borehole, Decommission	21	04MAY04	02JUN04	0.00
1st Borehole, Dispose of Waste	21	03JUN04	01JUL04	0.00
1st Borehole, Decommssioning & Waste Disposal	40	02AUG04	27SEP04	178,456.00
2nd Borehole, Decommission	21	02AUG04	30AUG04	0.00
2nd Borehole, Dispose of Waste	19	31AUG04	27SEP04	0.00
3rd Borehole, Decommission	22	27OCT04	29NOV04	103,450.40
3rd Borehole, Dispose of Waste	21	27OCT04	24NOV04	75,005.60
1st Characterization, Decommission	22	30NOV04	31DEC04	0.00
1st Characterization, Dispose of Waste	20	04JAN05	31JAN05	0.00
1st Characterization, Demobilize	20	04JAN05	31JAN05	0.00
1.01.04.01.03.03.23.07 Field Investigation Report A-AX				
FIR A-AX (Risk Assessment)	226	01OCT04	25AUG05	460,940.40
Prepare Internal Draft FIR	76	01OCT04*	21JAN05	0.00
Review Internal Draft FIR	15	24JAN05	11FEB05	0.00
Inc. Comments, Prepare Draft A FIR	15	14FEB05	07MAR05	0.00
DOE Review Rev A FIR	10	08MAR05	21MAR05	0.00
Incorp. Comments/Prep Rev 0 FIR	10	22MAR05	04APR05	0.00
Transmit Rev 0 FIR to DOE	10	05APR05	18APR05	0.00
DOE Transmit Rev 0 FIR to Ecology	10	19APR05	02MAY05	0.00
Ecology Receives FIR	0		02MAY05*	0.00
Ecology Review Rev 0 FIR for A-AX	30	03MAY05	01JUN05	0.00
Incorp Ecology Comments, Prep Rev 1 FIR	30	02JUN05	15JUL05	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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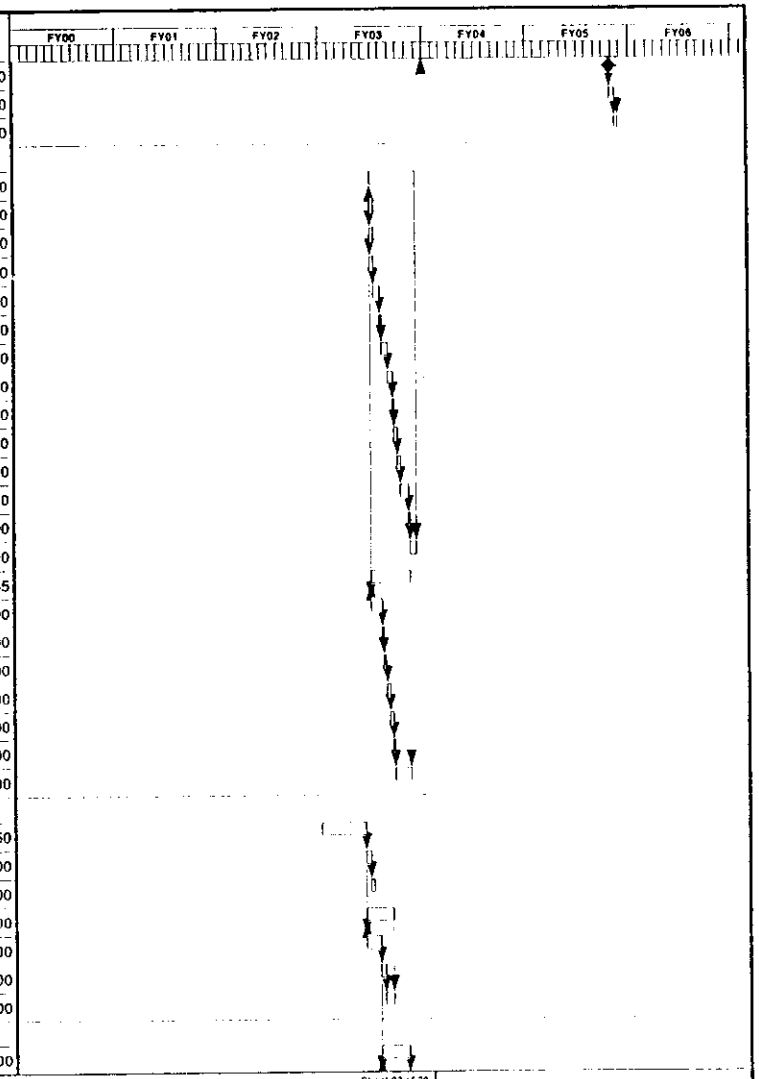
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Release Rev. 1 FIR	0		28JUL05	0.00
Transmit Rev 1 FIR to DOE	10	29JUL05	11AUG05	0.00
DOE Transmit Rev 1 FIR to Ecology	10	12AUG05	25AUG05	0.00
1.01.04.01.03.03.23.08 Permitting and Safety A-AX				
Safety Basis A-AX	115	24MAR03	04SEP03	69,576.80
Provide Borehole/Geology Description	10	24MAR03*	04APR03	0.00
Provide Drilling Equipment/Process Description	10	24MAR03	04APR03	0.00
Develop Rad/Tox Source Term	10	24MAR03	04APR03	0.00
Prepare Release Calc Document	15	07APR03	25APR03	0.00
Prepare USQ Determination	5	28APR03	02MAY03	0.00
Prepare PHA Document	15	05MAY03	23MAY03	0.00
Define Controls	10	27MAY03	09JUN03	0.00
Prepare AB Change Package	5	10JUN03	16JUN03	0.00
Conduct Peer and Tier 1 Reviews	10	17JUN03	30JUN03	0.00
Transmit AB Revision Request to DOE	5	01JUL03	09JUL03	0.00
Conduct Tier II/III Reviews	20	10JUL03	06AUG03	0.00
Transmit Authorization Letter/SER	5	07AUG03	13AUG03	0.00
Amend AB Document	15	14AUG03	04SEP03	0.00
Air Permitting	100	24MAR03	13AUG03	17,344.35
Prepare Non Rad NOC	30	24MAR03	02MAY03	0.00
Internal Review	5	05MAY03	09MAY03	0.00
Revise	5	12MAY03	16MAY03	0.00
PHMC/DOE Review	10	19MAY03	02JUN03	0.00
Revise	5	03JUN03	09JUN03	0.00
Issue to Regulators	5	10JUN03	16JUN03	0.00
Regulator Review/Approval	40	17JUN03	13AUG03	0.00
1.01.04.01.03.03.24.01 Subsurface Conditions Description Report WMA C				
Prepare Draft WMA C Data Packages	105	01OCT02*	04MAR03	315,983.50
Review Draft WMA C Data Pkg.	10	05MAR03	18MAR03	0.00
Revise/Issue WMA C Data Pkg	10	19MAR03	01APR03	0.00
Subsurface Conditions Description Report T-TX-TY	64	05MAR03	03JUN03	126,377.00
Develop Draft SCD Report	34	05MAR03	21APR03	0.00
Review Draft SCD Report	11	22APR03	06MAY03	0.00
Incorporate Comments, Prepare Final SCD Report	19	07MAY03	03JUN03	0.00
1.01.04.01.03.03.24.02 Data Quality Objectives WMA C				
Data Quality Objectives WMA C	71	22APR03	01AUG03	156,705.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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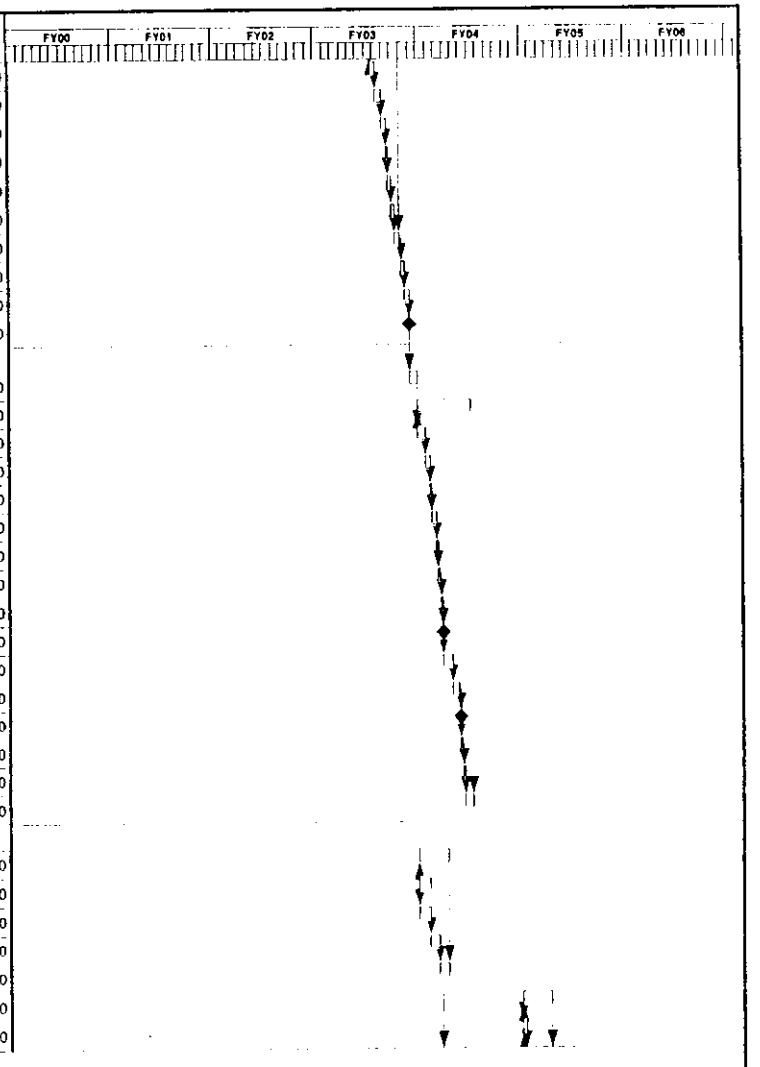
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Plan DQO	13	22APR03	08MAY03	0.00
Conduct DQO Meetings	16	09MAY03	02JUN03	0.00
Prepare Draft A DQO Report	11	03JUN03	17JUN03	0.00
Tech Team Review Draft A DQO Report	5	18JUN03	24JUN03	0.00
Inc Comments/Prepare Draft B DQO Report	5	25JUN03	01JUL03	0.00
Senior Tech Team Review Draft B DQO Report	10	02JUL03	17JUL03	0.00
Inc. Comments/Prepare Draft C DQO Report	11	18JUL03	01AUG03	0.00
Decision Makers Briefing/Review Draft C DQO Rpt	10	04AUG03	15AUG03	0.00
Inc. Comments/Prepare Rev 0 DQO Report	11	18AUG03	02SEP03	0.00
Issue Rev 0 WMA C DQO Report	0		02SEP03	0.00
1.01.04.01.03.03.24.03 Site Specific Work Plan WMA C				
Prepare Draft A WMA C Work Plan Addendum	20	03SEP03	30SEP03	24,400.00
Site Specific Work Plan Addendum WMA C	130	01OCT03	07APR04	187,205.00
Prepare Draft A WMA C Work Plan Addendum	20	01OCT03	28OCT03	0.00
Internal Review Draft A WMA C WP Addendum	10	29OCT03	11NOV03	0.00
Inc Comments/Prepare Draft B WMA C WP Addendum	6	12NOV03	19NOV03	0.00
DOE Review Draft B WMA C WP Addendum	10	20NOV03	05DEC03	0.00
Inc. Comments/Prepare Rev 0 WMA C WP Addendum	5	08DEC03	12DEC03	0.00
Transmit Rev 0 WMA C WP Addendum to DOE	5	15DEC03	19DEC03	0.00
DOE Transmit Draft 0 WP Addendum to Ecology	5	22DEC03	30DEC03	0.00
TPA Milestone M-45-54	0		30DEC03*	0.00
Ecology Review Draft 0 WMA C WP Addendum	30	31DEC03	29JAN04	0.00
Inc Ecology Comments/Prepare Rev 1 WP Addendum	15	30JAN04	20FEB04	0.00
Release Rev. 1 WMA C WP Addendum	0		27FEB04	0.00
Transmit Rev. 1 WMA C WP Addendum	5	01MAR04	05MAR04	0.00
DOE Transmit Rev 1 WP Addendum to Ecology	5	08MAR04	12MAR04	0.00
Ecology Transmits Approval Letter	20	15MAR04	09APR04	0.00
1.01.04.01.03.03.24.04 Drilling and Sampling WMA C				
1st Borehole, Prep/Planning	69	01OCT03	12JAN04	100,755.00
Modify Contracts, (field/lab)	29	01OCT03*	10NOV03	0.00
1st Borehole, Planning (field/lab)	29	01OCT03	10NOV03	0.00
1st Borehole, Prep Field Procedures & Specs	19	11NOV03	09DEC03	0.00
1st Borehole, Readiness Assessment	21	10DEC03	12JAN04	0.00
1st Borehole, Drilling and Sampling	66	01OCT04	07JAN05	1,018,866.00
1st Borehole, Site Prep	10	01OCT04*	14OCT04	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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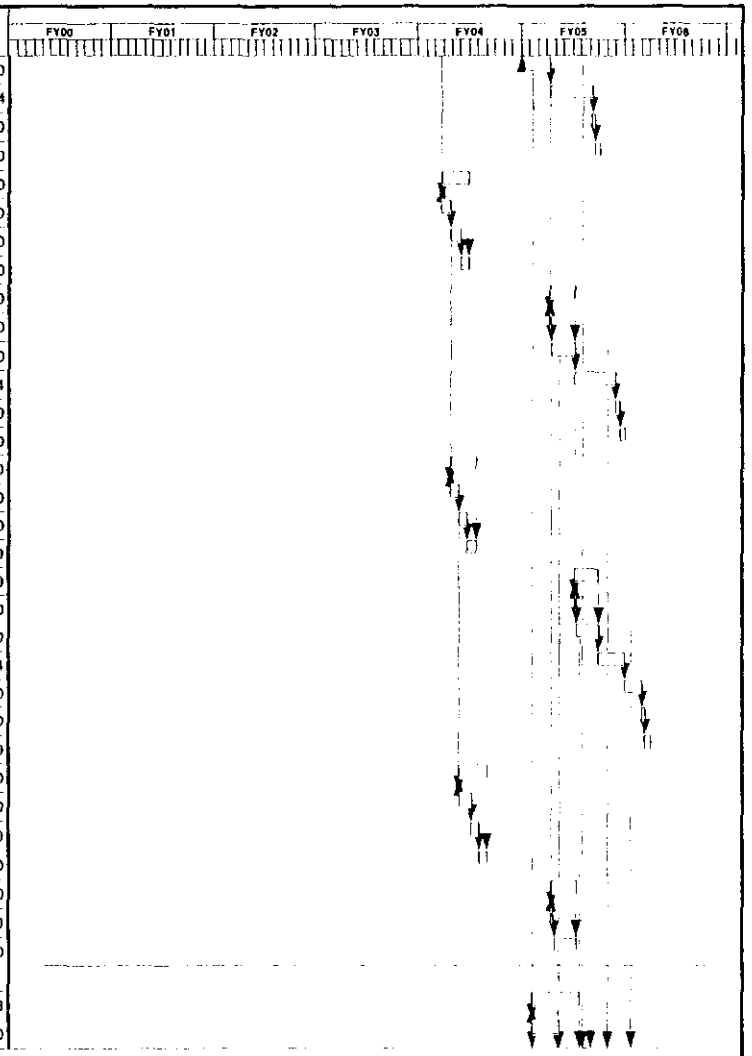
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1st Borehole, Drill and Sample	56	15OCT04	07JAN05	0.00
1st Borehole, Prepare Summary Report	105	10JAN05	07JUN05	52,944.24
1st Borehole, Review Summary Report	10	08JUN05	21JUN05	0.00
Incorporate Comments/Issue Summary Report	10	22JUN05	07JUL05	0.00
2nd Borehole, Planning/Prep	63	24DEC03	25MAR04	100,217.60
2nd Borehole, Planning (field/lab)	21	24DEC03	26JAN04	0.00
2nd Borehole, Prep Field Procedures & Specs	21	27JAN04	25FEB04	0.00
2nd Borehole, Readiness Assessment	21	26FEB04	25MAR04	0.00
2nd Borehole, Drill and sample	61	10JAN05	05APR05	1,018,935.00
2nd Borehole, Site Prep	5	10JAN05	14JAN05	0.00
2nd Borehole, Drill and sample	56	17JAN05	05APR05	0.00
2nd Borehole, Prepare Summary Report	104	06APR05	01SEP05	52,944.24
2nd Borehole, Review Summary Report	10	02SEP05	16SEP05	0.00
Incorporate Comments/Issue Summary Report	10	19SEP05	30SEP05	0.00
3rd Borehole, Prep/Planning	60	27JAN04	20APR04	100,755.00
3rd Borehole, Planning (field/lab)	19	27JAN04*	23FEB04	0.00
3rd Borehole, Prep Field Procedures & Specs	20	24FEB04	22MAR04	0.00
3rd Borehole, Readiness Assessment	21	23MAR04	20APR04	0.00
3rd Borehole, Drill and sample	61	06APR05	30JUN05	1,018,935.00
3rd Borehole, Site Prep	5	06APR05	12APR05	0.00
3rd Borehole, Drill and sample	56	*13APR05*	*30JUN05*	*0.00*
3rd Borehole, Prepare Summary Report	63	01JUL05	30SEP05	31,819.04
3rd Borehole, Prepare Summary Report	42	03OCT05	01DEC05	21,125.20
3rd Borehole, Review Summary Report	*10*	*02DEC05*	*15DEC05*	*0.00*
Incorporate Comments/Issue Summary Report	10	16DEC05	03JAN06	0.00
1st Field Characterization, Planning/Prep	71	24FEB04	02JUN04	0.00
1st Field Characterization, Planning (field/lab)	30	*24FEB04*	*05APR04*	*0.00*
1st Field Character. Prep Field Procedures/Specs	21	08APR04	04MAY04	0.00
1st Field Characterization, Readiness Assessment	20	05MAY04	02JUN04	0.00
1st Field Characterization, Drill and Sample	*61*	*17JAN05*	*12APR05*	*637,550.80*
1st Field Characterization, Site Prep	5	17JAN05	21JAN05	0.00
1st Field Characterization, Drill and Sample	56	24JAN05	12APR05	0.00
1.01.04.01.03.03.24.05 Laboratory Analysis WMA C				
1st Borehole, Lab Analysis	112	12NOV04	26APR05	453,898.88
1st Borehole, Screening Lab Analysis	61	12NOV04	11FEB05	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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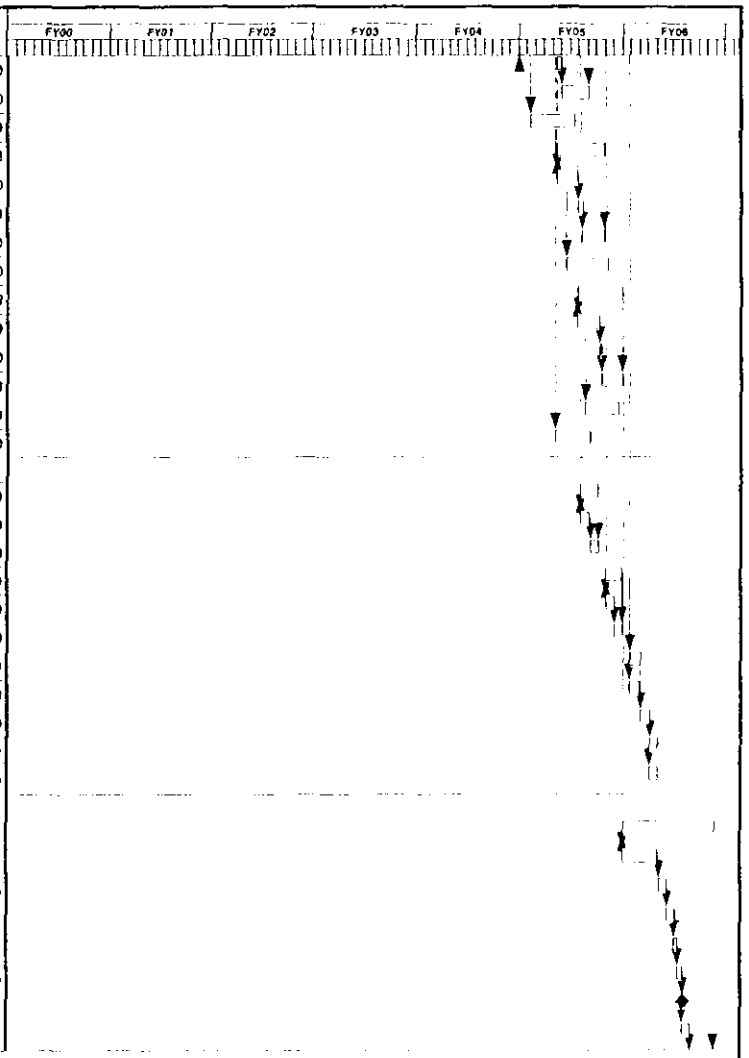
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1st Borehole, Select Samples for Rad/Chem Analys	10	14FEB05	28FEB05	0.00
1st Borehole, Rad/Chem Analysis	65	01MAR05	31MAY05	0.00
1st Borehole, Hydraulic Properties Analysis	102	12NOV04	12APR05	0.00
2nd Borehole, Lab Analysis	116	14FEB05	29JUL05	453,898.88
2nd Borehole, Screening Lab Analysis	51	14FEB05	26APR05	0.00
2nd Borehole, Select Samples for Rad/Chem Analys	10	27APR05	10MAY05	0.00
2nd Borehole, Rad/Chem Analysis	55	11MAY05	29JUL05	0.00
2nd Borehole, Hydraulic Properties Analysis	102	15MAR05	08AUG05	0.00
3rd Borehole, Lab Analysis	108	27APR05	29SEP05	453,898.88
3rd Borehole, Screening Lab Analysis	51	27APR05	11JUL05	0.00
3rd Borehole, Select Samples for Rad/Chem Analys	5	12JUL05	18JUL05	0.00
3rd Borehole, Rad/Chem Analysis	52	19JUL05	29SEP05	0.00
3rd Borehole, Hydraulic Properties Analysis	79	25MAY05	16SEP05	0.00
1st Field Characterization, Rad/Chem Analysis	88	07FEB05	10JUN05	201,433.90
1.01.04.01.03.03.24.06 Decommissioning & Waste Disposal WMA C				
1st Borehole, Decommssioning & Waste Disposal	42	05MAY05	06JUL05	178,456.00
1st Borehole, Decommission	21	05MAY05	03JUN05	0.00
1st Borehole, Dispose of Waste	21	06JUN05	06JUL05	0.00
1st Borehole, Decommssioning & Waste Disposal	40	03AUG05	28SEP05	178,456.00
2nd Borehole, Decommission	21	03AUG05	31AUG05	0.00
2nd Borehole, Dispose of Waste	19	01SEP05	28SEP05	0.00
3rd Borehole, Decommission	22	28OCT05	30NOV05	103,450.40
3rd Borehole, Dispose of Waste	21	28OCT05	29NOV05	75,005.60
1st Characterization, Decommission	22	01DEC05	04JAN06	0.00
1st Characterization, Dispose of Waste	20	05JAN06	01FEB06	0.00
1st Characterization, Demobilize	20	05JAN06	01FEB06	0.00
1.01.04.01.03.03.24.07 Field Investigation Report WMA C				
LFI Report WMA C (Risk Assessment)	222	03OCT05	21AUG06	460,940.40
Prepare Draft LFI Report	85	03OCT05*	03FEB06	0.00
Review Prelim. Draft LFI Report	20	06FEB06	06MAR06	0.00
Incorp Comments, Prepare Draft A LFI report	20	07MAR06	03APR06	0.00
Transmit Draft A LFI Report to DOE	10	04APR06	17APR06	0.00
DOE Transmit Draft A LFI Report to Ecology	10	18APR06	01MAY06	0.00
Ecology Receives WMA C Draft LFI	0		01MAY06	0.00
Ecology Review Draft A LFI Report	30	02MAY06	31MAY06	0.00



Project Start 01OCT97
Project Finish 04DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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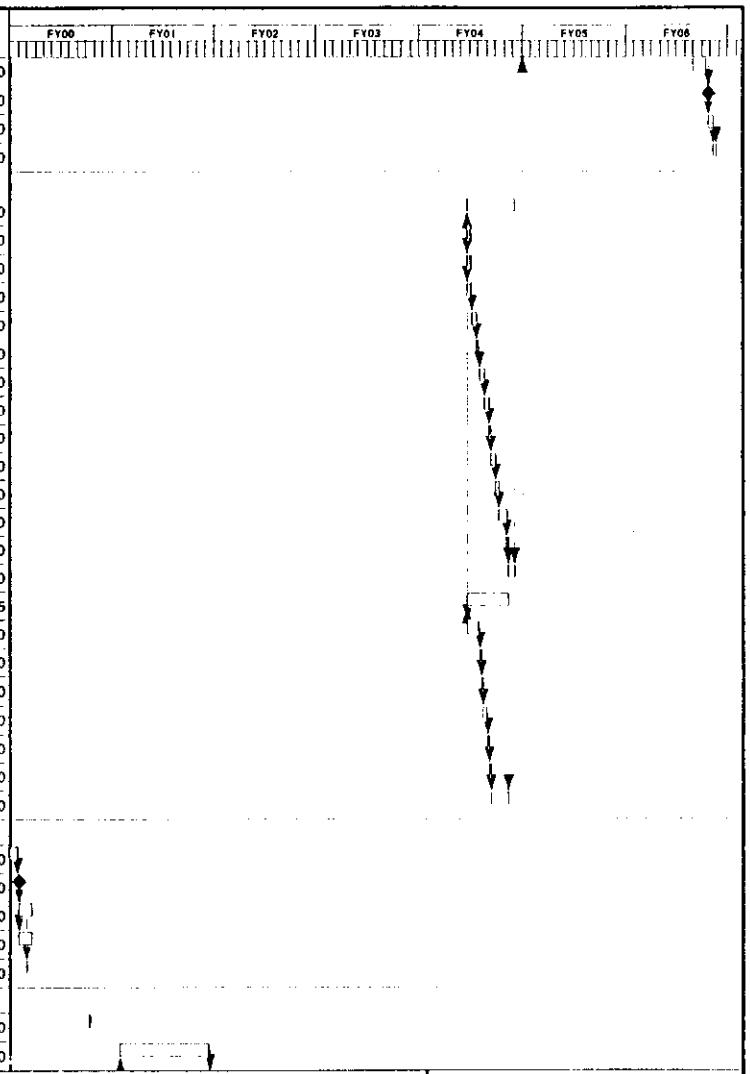
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Incorporate Comments, Prepare Final LFI Report	28	01JUN06	12JUL06	0.00
Issue Final LFI Report	0		26JUL06	0.00
Transmit Final LFI Report to DOE	10	27JUL06	09AUG06	0.00
DOE Transmit Final LFI Report to Ecology	9	10AUG06	22AUG06	0.00
1.01.04.01.03.03.24.08 Permitting and Safety WMA C				
Safety Basis WMA C	115	22MAR04	01SEP04	69,576.80
Provide Borehole/Geology Description	10	22MAR04*	02APR04	0.00
Provide Drilling Equipment/Process Description	10	22MAR04	02APR04	0.00
Develop Rad/Tox Source Term	10	22MAR04	02APR04	0.00
Prepare Release Calc Document	15	05APR04	23APR04	0.00
Prepare USQ Determination	5	26APR04	30APR04	0.00
Prepare PHA Document	15	03MAY04	21MAY04	0.00
Define Controls	10	24MAY04	07JUN04	0.00
Prepare AB Change Package	5	08JUN04	14JUN04	0.00
Conduct Peer and Tier I Reviews	10	15JUN04	28JUN04	0.00
Transmit AB Revision Request to DOE	5	29JUN04	07JUL04	0.00
Conduct Tier II/III Reviews	20	08JUL04	04AUG04	0.00
Transmit Authorization Letter/SER	5	05AUG04	11AUG04	0.00
Amend AB Document	15	12AUG04	01SEP04	0.00
Air Permitting	100	22MAR04	11AUG04	17,344.35
Prepare Non Rad NOC	30	22MAR04	30APR04	0.00
Internal Review	5	03MAY04	07MAY04	0.00
Revise	5	10MAY04	14MAY04	0.00
PHMC/DOE Review	10	17MAY04	28MAY04	0.00
Revise	5	01JUN04	07JUN04	0.00
Issue to Regulators	5	08JUN04	14JUN04	0.00
Regulator Review/Approval	40	15JUN04	11AUG04	0.00
1.01.04.01.03.03.25.01 Engineering Study				
DOE Transmit Engineering Study to Ecology	20	01OCT99	28OCT99	0.00
TPA Milestone M-45-56-T01	0		31OCT99*	0.00
Ecology Review Document	45	01NOV99	15DEC99	0.00
Respond to Comments	31	01NOV99	15DEC99	31,357.60
Ecology Provide Interim Approval	1	01DEC99	01DEC99	0.00
1.01.04.01.03.03.25.02 Implement Interim Measures				
DOE/Regulators Annual Meeting on Interim Measure	5	10JUL00*	14JUL00	0.00
Decommissioning of Unlit Wells	216	01NOV00	11SEP01	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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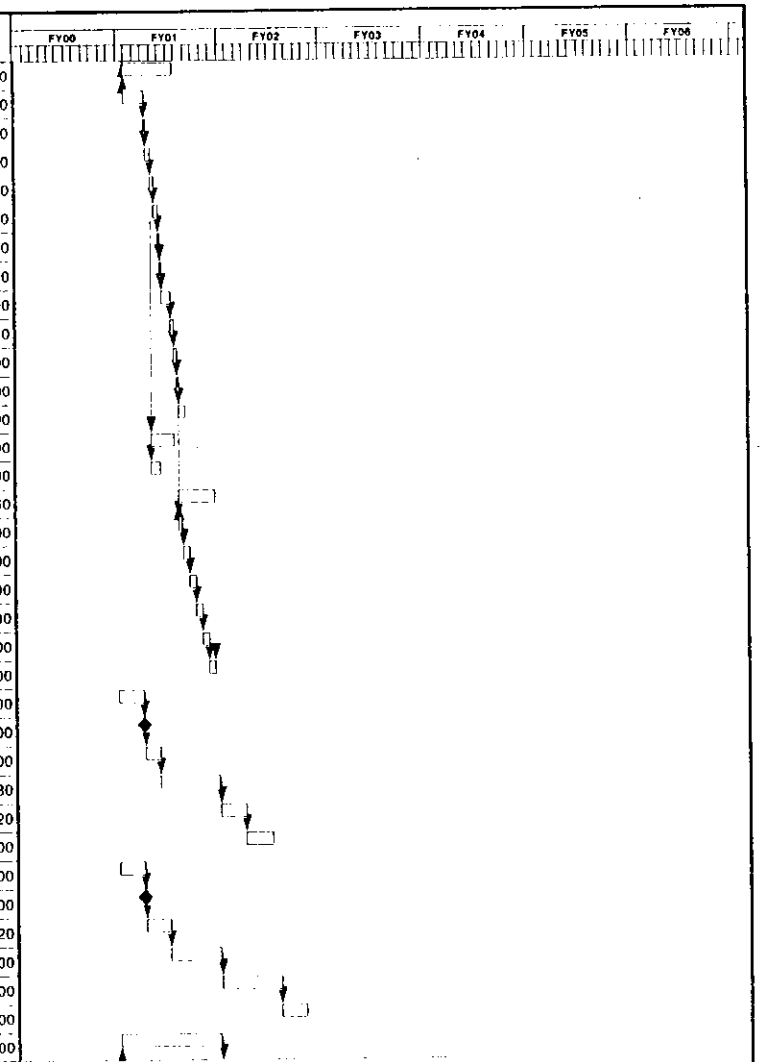
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Prep/Issue Borehole Decommissioning Work Plan	119	01NOV00	24APR01	53,661.20
Prep Draft A Borehole DWP	45	01NOV00*	09JAN01	0.00
Review Draft A Borehole DWP	5	10JAN01	16JAN01	0.00
Revise Draft A Borehole DWP	9	17JAN01	29JAN01	0.00
DOE Review Rev A Borehole DWP	10	30JAN01	12FEB01	0.00
Incorp Comments/Prep Rev 0 DWP	10	13FEB01	27FEB01	0.00
Submit Rev. 0 Work Plan to DOE	5	28FEB01	06MAR01	0.00
DOE Submit Rev. 0 Work Plan to Ecology	5	07MAR01	13MAR01	0.00
Ecology Review Rev. 0 Work Plan	30	14MAR01	12APR01	0.00
Revise Borehole Decommissioning Work Plan	10	13APR01	26APR01	0.00
Transmit Rev. 1 WP to DOE	5	27APR01	03MAY01	0.00
DOE Transmit Rev. 1 WP to Ecology	5	04MAY01	10MAY01	0.00
Ecology Transmit Approval Letter	15	11MAY01	01JUN01	0.00
Air Permitting	62	30JAN01	26APR01	0.00
Award Contract	26	30JAN01	07MAR01	0.00
Prep Work Package/Decommision Unlit Wells	87	11MAY01	13SEP01	103,587.60
Develop Field Work Plan	10	11MAY01*	24MAY01	0.00
Develop Work Package	15	30MAY01	19JUN01	0.00
Decommission Hole #1	15	20JUN01	11JUL01	0.00
Decommission Hole #2	15	12JUL01	01AUG01	0.00
Decommission Hole #3	15	02AUG01	22AUG01	0.00
Decommission Hole #4	15	23AUG01	13SEP01	0.00
Propose Waterline Decommissioning Plan to DOE	61	02OCT00*	29DEC00	25,786.00
Recieve Concurrence from DOE	0		29DEC00	0.00
Prepare Work Package/Permits/Procurement	42	02JAN01	01MAR01	48,684.00
Decommission Abandoned Waterlines	148	02MAR01	28SEP01	206,668.80
Decommission Abandoned Waterlines	60	01OCT01	28DEC01	83,935.20
Prepare Final Report	64	31DEC01	01APR02	32,635.00
Propose Surface Water Run-on Barrier Plan to DOE	61	02OCT00*	29DEC00	25,786.00
Recieve Concurrence from DOE	0		29DEC00	0.00
Prepare Work Package/Permits/Procurement/PFWR	64	02JAN01	02APR01	51,143.20
Install Surface Water Run-on Barriers	126	03APR01	28SEP01	170,800.00
Install Surface Water Run-on Barriers	145	01OCT01	30APR02	195,200.00
Prepare Final Report	64	01MAY02	01AUG02	32,635.00
Support Studies for Interim Surface Barrier	251	02OCT00*	28SEP01	176,920.00



Project Start 01OCT97
Project Finish 06DEC99
Data Date 01OCT99
Run Date 05AUG99

Early Bar
Progress Bar
Critical Activity

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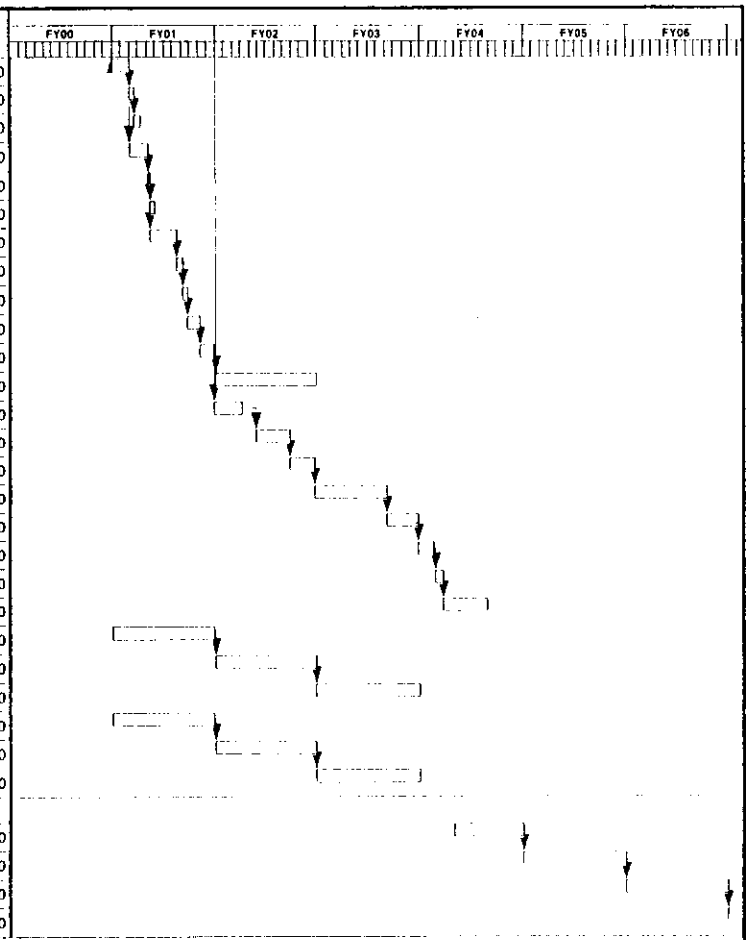
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Prepare Barrier Selection Report	42	02OCT00*	30NOV00	0.00
Review Barrier Selection Report	11	01DEC00	15DEC00	0.00
Revise Barrier Selection Report	13	18DEC00	08JAN01	0.00
Prep Draft WP for Installation of Barrier Test	44	01DEC00	05FEB01	0.00
Review Draft Work Plan	5	06FEB01	12FEB01	0.00
Revise/Issue Final Work Plan for Barrier Test	11	13FEB01	28FEB01	0.00
Prep Procure. Spec for Barrier Installation Test	65	13FEB01*	15MAY01	0.00
Review Spec for Barrier Installation Test	14	16MAY01	05JUN01	0.00
Revise Spec for Barrier Installation Test	15	08JUN01	26JUN01	0.00
Pre-bid Comments on Spec	30	27JUN01	08AUG01	0.00
Revise Spec for Barrier Installation Test	32	09AUG01	24SEP01	0.00
Barrier Demo Installation/Monitoring	251	01OCT01	01OCT02	1,862,386.00
Award Contracts Barrier Demo Installation	66	25SEP01	02JAN02	0.00
Barrier Demo Installation	84	27FEB02	25JUN02	0.00
Barrier Demo Monitoring (FY01)	63	26JUN02	25SEP02	0.00
Barrier Demo Monitoring (FY02)	172	26SEP02	03JUN03	26,248.00
Data Analysis, Recommendations,Prep Draft Report	78	04JUN03	24SEP03	0.00
Data Analysis, Recommendations,Prep Draft Report	42	25SEP03	21NOV03	0.00
Review Draft Report	20	24NOV03	23DEC03	0.00
Issue Final Rpt on Recommendations for Barriers	106	24DEC03	25MAY04	0.00
Decommission Abandoned Wells (FY01)	251	02OCT00*	28SEP01	488,000.00
Decommission Abandoned Wells (FY02)	250	01OCT01	30SEP02	488,000.00
Decommission Abandoned Wells (FY03)	251	01OCT02	30SEP03	488,000.00
Operate/Monitor Lysimeters/ERT (FY01)	251	02OCT00*	28SEP01	122,000.00
Operate/Monitor Lysimeters/ERT (FY02)	250	01OCT01	30SEP02	122,000.00
Operate/Monitor Lysimeters/ERT (FY03)	251	01OCT02	30SEP03	122,000.00
1.01.04.01.03.03.25.03 Corrective Measures				
Conceptual Design Surface Water Run-off Barriers	169	02FEB04*	30SEP04	732,000.00
Install Surface Water Run-off Barriers (FY05)	251	01OCT04	30SEP05	9,760,000.00
Install Surface Water Run-off Barriers (FY06)	250	03OCT05	29SEP06	9,760,000.00
Install Surface Water Run-off Barriers (FY07)	251	02OCT06	28SEP07	9,760,000.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

Early Bar
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Critical Activity

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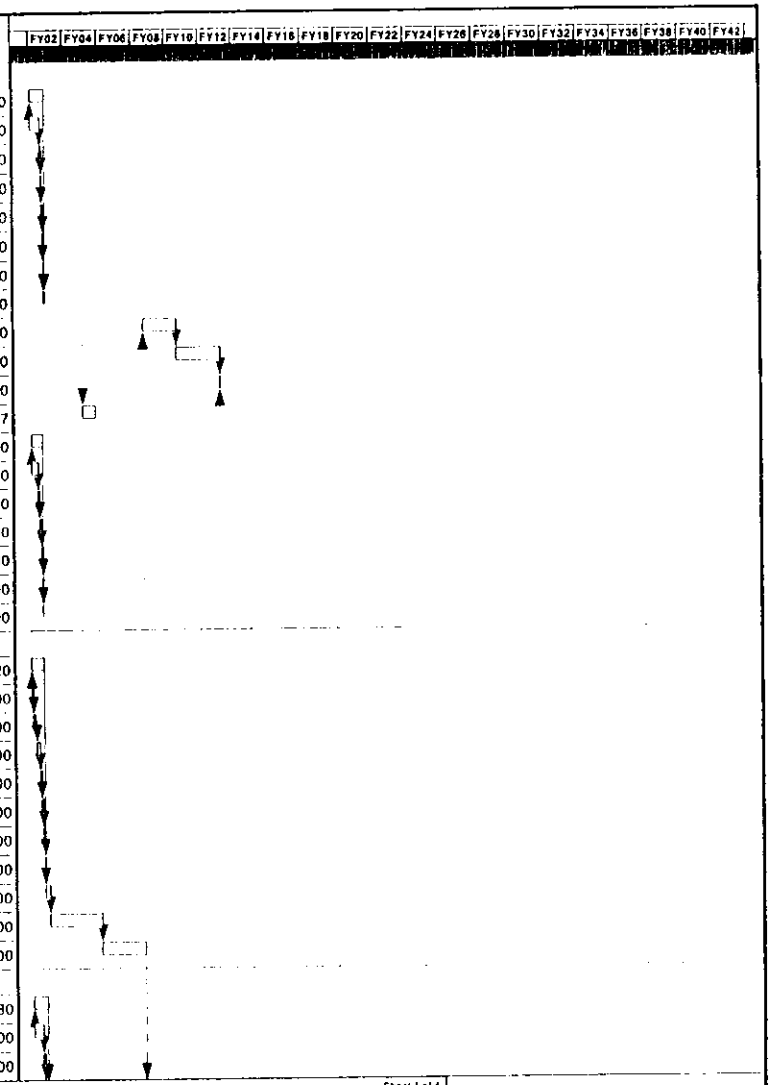
LMHC
FY00 DRAFT MYWP SCHEDULE
RPP Vadose Zone

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04.01.03.02.01 Closure Work Plan/Closure Plan				
SST CWP Rev 2	201	01NOV00	20AUG01	474,586.20
Prepare Draft SST CWP Rev 2	148	01NOV00*	05JUN01	0.00
Internal Review Draft SST CWP Rev 2	10	06JUN01	19JUN01	0.00
Incorp Comments Draft SST CWS Rev 2	10	20JUN01	03JUL01	0.00
DOE Review Draft SST CWP Rev 2	13	05JUL01	23JUL01	0.00
Incorp DOE Comments Draft SST CWS Rev 2	10	24JUL01	06AUG01	0.00
Issue SST CWP Rev 2 and Transmit to DOE	5	07AUG01	13AUG01	0.00
DOE Transmit SST CWP Rev 2 to Ecology	5	14AUG01	20AUG01	0.00
Prep SST Closure Plan Application Rev 0	501	01JUN07*	29MAY09	1,344,200.00
SST Closure Plan Review Cycle	648	01JUN09	30DEC11	794,540.00
Closure Plan Issued	1	03JAN12	03JAN12	0.00
Prepare SST CWP Rev 3	186	03NOV03*	30JUL04	306,699.87
Strategy for Waste Classification	166	01NOV00	29JUN01	103,649.00
Develop Draft A Strategy for Waste Classificat'n	102	01NOV00*	30MAR01	0.00
Internal Review Strategy for Waste Classificat'n	15	02APR01	20APR01	0.00
Revise/Prep Draft B Strategy for Waste Classific	15	23APR01	11MAY01	0.00
DOE Review Draft B Strategy for Waste Classific	19	14MAY01	08JUN01	0.00
Revise/Prep Rev 0 Strategy for Waste Classificat	15	11JUN01	29JUN01	0.00
Issue Rev 0 Strategy for Waste Classification	1	29JUN01	29JUN01	0.00
1.01.04.01.03.02.02 Closure Alternatives				
Closure/Post Closure Criteria	188	02OCT00	29JUN01	232,923.20
Prep SOW for Closure/Post Closure Criteria	25	02OCT00*	03NOV00	0.00
Prep for Closure/Post Closure Criteria Workshops	28	06NOV00	15DEC00	0.00
Hold Workshop on Closure/Post Closure Criteria	59	08JAN01	30MAR01	0.00
Document Criteria Developed at Workshops	20	02APR01	27APR01	0.00
Review Criteria for Closure/Post Closure	20	30APR01	25MAY01	0.00
Revise Criteria for Closure/Post Closure	19	29MAY01	22JUN01	0.00
Issue Criteria for Closure/Post Closure	1	29JUN01	29JUN01	0.00
Identify Technologies that may meet Criteria	63	02JUL01	28SEP01	35,397.00
Test/Demonstrate Technologies	753	01OCT01	30SEP04	1,247,040.00
Monitor Tests/Demonstrations	647	01OCT04	01MAY07	403,260.00
1.01.04.01.03.02.03 System Definition				
System Eng. Implementation Plan	207	02OCT00	27JUL01	106,930.80
Prepare Rev A System Eng. Implementation Plan	145	02OCT00*	30APR01	0.00
Review Rev A System Eng. Implementation Plan	15	01MAY01	21MAY01	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Plan Date 05AUG99

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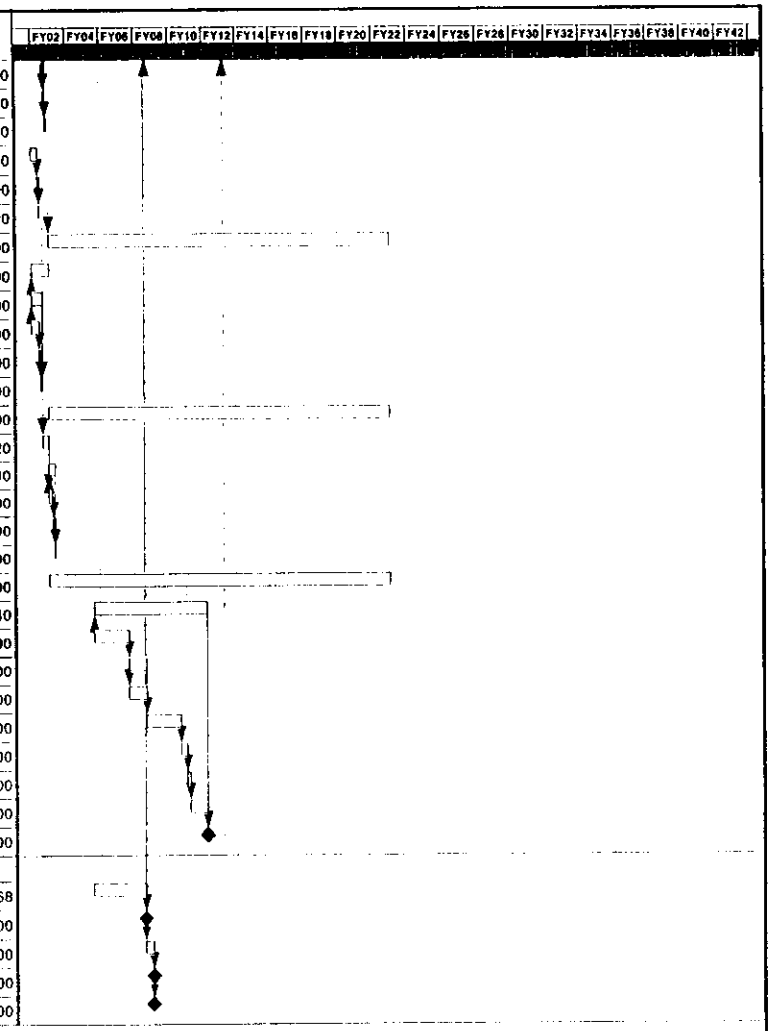
LMHC
FY00 DRAFT MYWP SCHEDULE
CLOSURE

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
Prep Rev B of System Eng. Implementation Plan	19	22MAY01	18JUN01	0.00
DOE Review Plan	13	19JUN01	06JUL01	0.00
Prep/Issue Rev 0 System Eng. Implementation Plan	15	30JUL01	17AUG01	0.00
Establish Functional Requirements for TF Closure	82	02OCT00*	30JAN01	120,243.20
Review Functional Requirements for TF Closure	20	31JAN01	28FEB01	0.00
Revise Functional Requirements for TF Closure	15	01MAR01	21MAR01	47,043.20
Maintain Functional Requirements for TF Closure	5,018	01OCT01*	30SEP21	940,864.00
Closure Mgmt. Plan	251	02OCT00	28SEP01	68,320.00
Closure Mgmt. Plan	164	02OCT00	25MAY01	152,830.00
Prep Draft Closure Mgmt. Plan	124	02OCT00*	30MAR01	0.00
Review Draft Closure Mgmt. Plan	15	02APR01	20APR01	0.00
Prep/Issue Rev 0 Closure Mgmt. Plan	25	23APR01	25MAY01	0.00
Maintain Progam Mgmt. Plan	5,018	01OCT01*	30SEP21	2,100,600.00
Prep Draft A Closure Design Requirements Doc.	84	01JUN01*	28SEP01	60,793.20
Closure Design Requirements Document	103	01OCT01	01MAR02	58,146.40
Prep Draft A Closure Design Requirements Doc.	53	01OCT01	14DEC01	0.00
Review Draft A Closure Design Requirements Doc.	20	07JAN02	01FEB02	0.00
Prep/Issue Rev 0 Closure Design Requirements Doc	19	04FEB02	01MAR02	0.00
Maintain Closure Design Requirements	5,017	01OCT01*	29SEP21	581,464.00
Prep/Approve Tank Farm Performance Assessment	1,652	01JUN04	31DEC10	2,059,262.40
Prep Interim Tank Farms Performance Assessment	502	01JUN04*	31MAY06	0.00
Review Interim Tank Farms Performance Assessment	251	01JUN06	31MAY07	0.00
Update Data Pkg for TF Performance Assessment	251	01JUN06	31MAY07	0.00
Prep Draft A Tank Farms Performance Assessment	501	01JUN07	29MAY09	0.00
DOE-ORP Review Draft A TF Performance Assessment	85	01JUN09	30SEP09	0.00
Prep Rev 0 Tank Farms Performance Assessment	62	01OCT09	31DEC09	0.00
DOE-HQ Review Rev 0 TF Performance Assessment	251	04JAN10	31DEC10	0.00
PA Approval	0		31DEC10	0.00
1.01.04.01.03.02.04 Closure EIS				
Prepare Closure EIS	751	03MAY04*	30APR07	7,987,660.68
Issue Final EIS	0		01MAY07	0.00
Issue Closure ROD	105	02MAY07	28SEP07	250,000.00
Issue ROD for Closure EIS	0		28SEP07	0.00
TIP--Decisions on Tank Farm Closure (T04-07-C01)	0		28SEP07	0.00



Project Start 01OCT97
Project Finish 06DEC09
Data Date 01OCT99
Run Date 05AUG99

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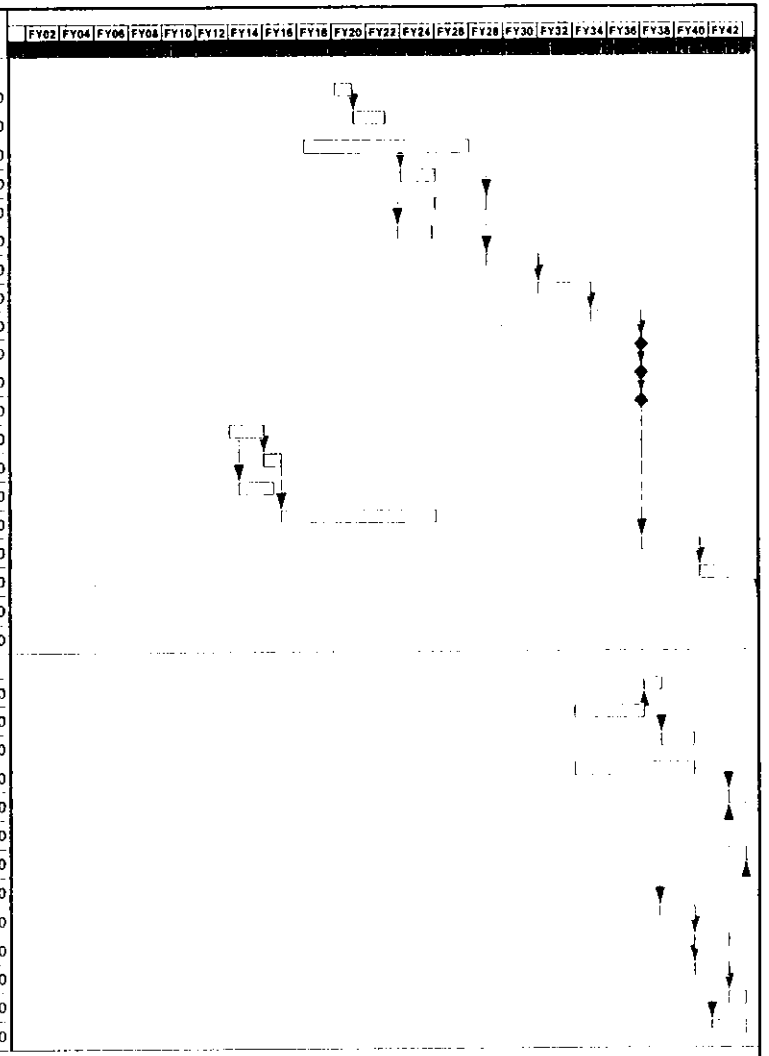
LMHC
FY00 DRAFT MYWP SCHEDULE
CLOSURE

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04.01.03.04 SST/MUST Closure				
Non-HLW classification for SSTs	251	10DEC18*	10DEC19	0.00
Performance Assessment per DOE 435.1	455	13JAN20	29OCT21	0.00
Closure Design for SSTs	2,428	30JAN17*	30SEP26	0.00
Prepare Closure Plans for SSTs	501	03OCT22*	30SEP24	0.00
Obtain Permits for SST Closure	753	01OCT24*	30SEP27	0.00
Amend Authorization Basis-SSTs	502	25JUL22*	23JUL24	0.00
Close SSTs	752	01OCT27*	30SEP30	14,190,324.00
Close SSTs	754	01OCT30	30SEP33	28,183,182.40
Close SSTs	752	03OCT33	30SEP36	38,444,870.80
Compl Retr of SSTs by Phase II PC (Phase II Sch)	0		30SEP36	0.00
M-45-06 Complete closure of all SST Farms	0		30SEP36	0.00
M-45-00 Complete closure of all SST Farms	0		30SEP36	0.00
D&D Design for SST Farms	501	01OCT12*	30SEP14	0.00
Obtain/modify D&D permits	251	01OCT14	30SEP15	0.00
Amend SST Farm D&D Authorizaton Basis	502	03APR13	02APR15	0.00
D&D SST Farms	2,257	01OCT15	27SEP24	14,036,180.60
Place SST Surface Barriers	835	01OCT36	31JAN40	35,157,660.80
Place SST Surface Barriers	837	01FEB40	01JUN43	54,503,110.60
Place SST Surface Barriers	837	02JUN43	28SEP46	55,830,715.40
Complete SST Surface Barriers	0		28SEP46	0.00
1.01.04.01.03.05 DST Closure				
Obtain non-HLW classification for DSTs	251	08OCT36	07OCT37	0.00
Characterize Waste Residue in DSTs	1,004	07OCT32	07OCT36	0.00
DST Closure Performance Assessment	501	08OCT37	06OCT39	0.00
Design DST Closure Systems	1,756	01OCT32*	30SEP39	0.00
Close DST Farms	1,757	01OCT41*	30SEP48	16,399,957.00
Close DST Farms	0		30SEP48	0.00
D&D DST Facilities	1,003	01OCT42	27SEP46	13,998,716.40
Place DST Surface Barriers	1,004	28SEP46	29SEP50	28,089,038.00
Amend DST Closure Safety Auth. Basis	501	01OCT37*	29SEP39	0.00
Modify closure permits (Part B)	501	03OCT39	30SEP41	0.00
Design DST Farm D&D	501	03OCT39	30SEP41	0.00
Obtain/modify DST D&D Permits	251	01OCT41	30SEP42	0.00
Amend authorization basis for DST D&D	501	01OCT40	30SEP42	0.00



Project Start 01OCT97
Project Finish 06DEC49
Data Date 01OCT99
Run Date 05AUG99

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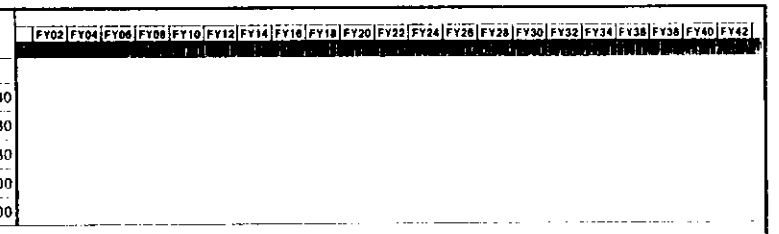
LMHC
FY00 DRAFT MYWP SCHEDULE
CLOSURE

Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
1.01.04 01.03.06 Post-Closure Monitoring				
Post Closure Monitoring	2,510	30SEP50	30SEP60	6,097,913.80
Post Closure Monitoring	2,508	01OCT60	05DEC69	6,097,913.80
Post Closure Monitoring	2,509	06DEC69	06DEC69	6,097,913.80
Complete Post Closue Monitoring	0		06DEC69	0.00
Close-Out of CLOSURE Project	0		06DEC69	0.00



Project Start 01OCT97
Project Finish 06DEC69
Data Date 01OCT99
Run Date 05AUG99

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FY00 DRAFT MYWP SCHEDULE
CLOSURE

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