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S

Single-Shell Tank Interim Stabilization Project Plan

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U.S. Department of Energy Contract DE-AC06-96RL13200

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Abstract: This project plan establishes the management framework for conduct of the TWRS Single-Shell Tank Interim Stabilization completion program. Specifically, this plan defines the mission needs and requirements; technical objectives and approach; organizational structure, roles, responsibilities, and interfaces; and operational methods. The plan is based on realistic assumptions and addresses three separate funding scenarios.

Janis Aardal 5-11-98

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EXECUTIVE SUMMARY

Solid and liquid radioactive waste continues to be stored in 149 single-shell tanks at the Hanford Site. To date, 119 tanks have had most of the pumpable liquid removed by interim stabilization. Thirty tanks remain to be stabilized. One of these tanks (C-106) will be stabilized by retrieval of the tank contents. The remaining 29 tanks will be interim stabilized by saltwell pumping. In the summer of 1997, the U.S. Department of Energy (DOE) placed a moratorium on the startup of additional saltwell pumping systems because of funding constraints and proposed modifications to the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1996) milestones to the Washington State Department of Ecology (Ecology).

In a letter dated February 10, 1998, "Final Determination Pursuant to Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) in the Matter of the Disapproval of the DOE's Change Control Form #M-41-97-01" (Fitzsimmons 1998), Ecology disapproved the DOE Change Control Form #M-41-97-01. In response, Fluor Daniel Hanford, Inc. (FDH) directed Lockheed Martin Hanford Corporation (LMHC) to initiate development of a project plan in a letter dated February 25, 1998, "Direction for Development of an Aggressive Single-Shell Tank (SST) Interim Stabilization Completion Project Plan in Support of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-41" (Hoogendoorn 1998).

In a letter dated March 2, 1998, "Request for an Aggressive Single-Shell Tank (SST) Interim Stabilization Completion Project Plan" (Sieracki 1998), the DOE reaffirmed the need for an aggressive SST interim stabilization completion project plan to support a finalized Tri-Party Agreement (Ecology et al. 1996) Milestone M-41 recovery plan. It was directed that this project plan be based on realistic assumptions and consider three separate funding scenarios:

- Case #1 - Maximum ramp-up with funding not a limiting factor
- Case #2 - Assume an additional \$5.6 million in April 1998, a supplemental appropriation of \$13.3 million in September, and \$11.7 million each subsequent Fiscal Year (FY)
- Case #3 - Assume an additional \$5.6 million in FY 1998 and \$11.7 million each subsequent FY.

Lockheed Martin Hanford Corporation assembled a task team to develop the requested project plan, utilizing an approach similar to that used to develop the Tank Waste Remediation System retrieval and disposal mission readiness-to-proceed certification package delivered in January 1998. Enabling assumptions were developed and reviewed with Tank Waste Remediation System contractor and DOE management. A systematic approach including the creation of a mission analysis, consideration of technical alternatives, the development of Level 1 logics for each of the 29 tanks remaining to be stabilized, decomposition to more detailed task descriptions, and the development of technical basis review packages was used to develop an updated cost and schedule baseline for Case 1. Two additional funding cases, with funding

EXECUTIVE SUMMARY

constraints, were generated by constraining activities on the Case 1 schedule.

The Case 1 schedule is aggressive. The incremental resources and parallel pumping operations necessary to support the Case 1 schedule represent a very significant increase over past interim stabilization efforts. This project plan describes the organization that is necessary to execute the Case 1 schedule. A dedicated project team with command of the operational, maintenance, engineering, and supporting resources needed to meet the project schedule is described. In addition, the management systems and controls to be utilized to control and execute the activities also are described.

The conclusions of the case analysis are presented are Table 1. The total project cost values are based on the assumptions documented in Section 3.1. The current Tri-Party Agreement milestone to complete saltwell pumping by September 2000 is not recoverable, based on the physical time necessary to pump the liquid from the tanks and constraints on ramp-up and training of the operations and supervisory staff.

Table 1. Case Analysis Conclusions.

Case	Total Project Cost*	Project Completion Date
Case 1	$126 million	September 2003
Case 2	$155 million	October 2010
Case 3	$157 million	January 2011

*FY 1998 through project completion including FY 1998 actual costs to date.

The technical work scope that comprises the SST Interim Stabilization Project results in significant schedule risk. Physical and chemical constraints associated with saltwell pumping result in large statistical variation in predicted pumping durations. It is not possible to predict with certainty the actual pumping durations and completion dates. Critical risks have been identified and are addressed in the Critical Risk Management List included as Table 3-1.

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LIST OF TERMS

ALARA	as low as reasonably achievable
BIO	Basis for Interim Operation
CAA	cost account authorization
CAP	cost account plan
CEIS	cost-estimating input sheet
DCRT	double-contained receiver tank
DOE	U.S. Department of Energy
DST	double-shell tank
Ecology	Washington State Department of Ecology
EP	emergency preparedness
EPA	U.S. Environmental Protection Agency
ERMI	Environmental Requirements Management Interface (database)
ESH&QA	Environmental, Safety, and Health, and Quality Assurance
FDH	Fluor Daniel Hanford, Inc.
FG	facility group
FGM	flammable gas monitor
FY	fiscal year
HANDI	Hanford Data Integration
ILAW	immobilized low-activity waste
IS	Interim Stabilization
ISMS	Integrated Safety Management System
LMHC	Lockheed Martin Hanford Corporation
MYWP	Multi-Year Work Plan
NOC	notice of construction
OS&H	occupational safety and health
OWVP	Operations Waste Volume Projection
P3	Primavera Project Planner
PHMC	Project Hanford Management Contract
PIC	portable instrument control
QAPP	Quality Assurance Project Plan
R&D	research and development
RL	U.S. Department of Energy, Richland Operations Office
S/RID	Standards and Requirements Identification Document
SER	safety evaluation report
SHMS	Standard Hydrogen Monitoring System
SST	single-shell tank
TENS	TWRS Engineering and Nuclear Safety
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TWR	Tank Waste Retrieval
TWRS	Tank Waste Remediation System
WBS	Work Breakdown Structure
WFIE	weight factor instrument enclosure

DEFINITIONS

Construction Projects:

Project W-058	Cross Site Transfer Line (Project W-058) is the cross-site waste transfer line between East and West tank farms.
Project W-151	Tank AZ-101 Mixer Pump Test (Project W-151) provides a waste mixing system in double-shell Tank AZ-101 and performs a demonstration test of this system in support of waste retrieval and sludge washing activities.
Project W-211	Initial Tank Retrieval Systems (Project W-211) provides waste mixing and retrieval systems in ten double-shell tanks to prepare waste feed for delivery to private contractors.
Project W-314	Tank Farm Restoration and Safe Operations (Project W-314) provides upgrades to the waste transfer system necessary to ensure safe, reliable transfer capability to support feed delivery.
Project W-320	Tank C-106 Waste Retrieval Sluicing system (Project W-320) provides a retrieval system in Tank C-106 for retrieving the C-106 sludge as part of the high-level waste feed.
Saltwell Pumping	Single-shell tank interim stabilization, removing pumpable liquid from single-shell tanks using a jet or submersible pump.
Saltwell System	Configuration consisting of piping with an inlet screen and containing either a submersible pump or a foot valve assembly at its lower end.

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SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT PLAN

1.0 INTRODUCTION

In a letter dated February 10, 1998, "Final Determination Pursuant to Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) in the Matter of the Disapproval of the DOE's Change Control Form #M-41-97-01" (Fitzsimmons 1998), the Washington State Department of Ecology (Ecology) disapproved the U.S. Department of Energy (DOE) Change Control Form #M-41-97-01. In response, Fluor Daniel Hanford, Inc. (FDH) directed Lockheed Martin Hanford Corporation (LMHC) to initiate development of a project plan in a letter dated February 25, 1998, "Direction for Development of an Aggressive Single-Shell Tank (SST) Interim Stabilization Completion Project Plan in Support of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-41" (Hoogendoorn 1998).

In a letter dated March 2, 1998, "Request for an Aggressive Single-Shell Tank (SST) Interim Stabilization Completion Project Plan" (Sieracki 1998), the DOE reaffirmed the direction that FDH and LMHC develop an aggressive SST Interim Stabilization (IS) completion project plan to support a finalized Tri-Party Agreement (Ecology et al. 1996) Milestone M-41 recovery plan. It was directed that this project plan be based on realistic assumptions and consider three separate funding scenarios: Case #1, Maximum Ramp Up; Case #2, Additional $18.9 million in fiscal year (FY) 1998; and Case #3, Additional $5.6 million in FY 1998.

This project plan establishes the management framework for conducting an aggressive SST IS completion program. The LMHC used a plan-development process modeled after the TWRS Waste Feed Delivery Readiness-to-Proceed certification process completed in January 1998.

The SST IS Project Plan documents the mission requirements and schedules, the resource requirements, and the management strategies and policies for accomplishing the SST IS Project mission. It defines the systems and practices used to establish consistency for business practices, engineering, physical configuration, and facility documentation and will be used to maintain this consistency throughout the project life cycle, particularly as changes are made. Specifically, this plan defines the mission needs and requirements; technical objectives and approach; organizational structure, roles, responsibilities, and interfaces; and operational methods.

Once DOE has completed its negotiations with the Ecology on the path forward for the SST IS Project, this plan and its supporting detail will be updated to form the project execution baseline.

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2.0 MISSION ANALYSIS

2.1 INTRODUCTION

2.1.1 Purpose

As required by the LMHC overall systems approach, this section evaluates the problem and establishes boundaries and interfaces, initial and end states, program life cycle, requirements, goals, objectives, and measures of success for the SST IS Project mission.

2.1.2 Mission Scope

As defined by HNF-SD-WM-MAR-008, *Tank Waste Remediation System Mission Analysis Report* (Acree 1998), the SST IS Project mission includes the activities needed to accomplish the following:

- Provide Authorization Basis and associated controls to allow safe completion of IS tasks associated with safety issues

- Construct and maintain the equipment necessary to safely remove pumpable liquid from the waste contained in the SSTs, including jumpers, necessary temporary overground lines, flammable gas monitors, exhausters, and necessary instrumentation and controls

- Remove pumpable liquid from the SSTs and transfer this liquid to the double-shell tanks (DSTs)

- Operate the pumping systems until the stabilization criteria are met

- Perform the necessary analysis and produce the necessary documentation

- Interim isolate the stabilized SSTs to ensure that no liquids enter the tank before the start of retrieval.

2.1.3 Mission Timing

Pumping of liquids from the SSTs has been ongoing since 1976. The present *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1996) major milestone M-41-00 currently requires completion of pumping and isolation of the tanks by September 30, 2000.

2.2 SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT PROBLEM

2.2.1 Problem Background

Large volumes of radioactive waste, a legacy from the Hanford Site's mission of weapons-grade plutonium production, were stored in 149 underground SSTs constructed from 1943 to 1964 and 28 underground DSTs constructed from 1968 to 1980. To limit the number of new DSTs that had to be constructed to store liquid radioactive waste, DOE authorized concentration of the waste liquids until the soluble salts were precipitated. These precipitated salts were allowed to settle in the SSTs. Significant free supernatants were pumped from most of the SSTs by 1980, concentrated, and then stored in the DSTs. No new waste additions were made to the SSTs after 1980. However, the SSTs have seen severe service and are well beyond their design life. Leakage of waste from 67 of the SSTs to the tank farm vadose zone is assumed or has been confirmed.

To reduce the potential of further SST leakage, an approach was developed using a central screen well and a low-capacity jet pump installed in the well to remove the drainable liquid. Liquid in the tank drains to this central well, driven by the pressure of the interstitial liquid in the bed (head height). To maximize the rate of drainage at all times, the liquid in the well is maintained at the lowest possible level. Operation in this manner ensures that the maximum drainable liquid is removed as quickly as possible. This process has been defined as "interim stabilization."

The solids remaining in the SSTs consist of porous beds, with the interstices filled with the remaining radioactive waste liquids. Depending on the particle sizes of the solid beds, varying amounts of liquid are trapped in the solids beds. For beds with relatively large particle sizes, the resultant capillary potential of the bed is low, and much of the interstitial liquid can drain or leak. For very fine particles, the capillary potential is very high, and little of the interstitial liquid can drain or leak. On average, 3.79 liters (1 gallon) of salt cake may contain 1.26 liters to 2.53 liters (1/3 to 2/3 gallon) of drainable liquid, while 3.79 liters (1 gallon) of sludge may contain 0.379 liter to 0.95 liter (1/10 to 1/4 gallon) of drainable liquid.

Therefore, the time to remove interstitial liquid can be as much as several years, depending on solution properties, solids porosity, surface tension of the liquid on the wetted solids, head height, well diameter, and solution viscosity. Pumping generally continues until the inflow into the central well is 3.2×10^{-3} liter per second (0.05 gallon per minute, less than 1 cup per minute). Flush water needed to keep the pump and screen clear exceeds the 3.2×10^{-3} liter per second (0.05 gallon per minute) criterion, so continuing pumping would only result in removing the water added to the system, rather than continuing to remove liquid waste from the solids.

2.2.2 Problem Definition

Sixty-seven of the 149 SSTs are assumed to have leaked liquid to the vadose zone over past years. The liquid from all tanks that have not yet been interim stabilized must, therefore, be removed to reduce the potential for further leakage. The SST IS mission covers 29 such tanks that still contain pumpable liquid. Among the 29 tanks are BY-105, BY-106, and SX-104, which are assumed leakers.

2.2.3 Major Issues Overview

Major issues that dominate the removal of liquid waste from the SSTs at this time are as follows:

- **Pumping Rate -** There is uncertainty in the pumping rate for each tank and uncertainty in the total operating efficiency for pumping operations. The total operating efficiency probably has higher uncertainty than previously calculated because of the increase in safety equipment/regulations, including additional shutdown interlocks, on pumping tanks. The result of the two uncertainties is an uncertainty in the overall pumping rate.

- **Waste Segregation -** DOE has directed that complexant and noncomplexant wastes and transuranic complexed wastes continue to be segregated to reduce future disposal costs. This reduces the flexibility in managing the available space in the DSTs and, thus, greatly extends the schedule required for removal of liquid from SSTs.

- **Project Priority -** Completion of this project will require continuous, focused effort and appropriate and stable funding.

- **Watchlist Tanks -** Pumping of Facility Group 2 (FG2) SSTs will require an amendment to the current Authorization Basis with U.S. Department of Energy, Richland Operations Office (RL) approval.

2.3 MISSION STATEMENT

The mission of the SST IS Project is to reduce the probability and consequence of SST leaks to the vadose zone by removing sufficient pumpable liquid from the tanks in a safe, compliant, and efficient manner to meet the defined IS criteria and to isolate the tanks to the maximum extent possible.

2.4 SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT BOUNDARY AND INTERFACES

Figure 2-1 shows the SST IS Project system boundary and interfaces. The following sections describe the programmatic, physical, and internal interfaces identified on the figure.

2.4.1 Programmatic Interfaces

- **RL** - The U.S. Department of Energy, Richland Operations Office, provides overall direction and funding for the SST IS Project. Its direct interaction is with FDH. The subcontractor responsible for execution of the project is LMHC.

- **Tank Waste Operations** - As part of the TWRS safe-storage objective, "Conduct Waste Consolidation and Reduction Activities," Tank Waste Operations is responsible for managing tank waste including the reduction of waste volume. Operations is also responsible for ensuring that systems and equipment used in common by Operations and the SST IS Project remain in operating order. Operations will be responsible for the routine surveillance of the tanks being stabilized and will continue these surveillance activities until the waste is retrieved. The IS organization will manage the surveillance activities needed for their operations of equipment such as liquid-level instrumentation.

- **Evaporator Operations** - The role of Evaporator Operations is to reduce the volume of waste as identified by DST Operations to maintain sufficient free volume to carry out transfers for the SST IS Project and other operations. In support of this objective, the *Multi-Year Work Plan* (MYWP) (LMHC 1997b) and the *Operations Waste Volume Projection (OWVP)* (Strode and Boyles) identify seven evaporator campaigns to be performed during the years 1999 through 2002. Approximately 2.16 x 10^7 liters (5.7 million gallons) of liquid must be processed by the evaporator to ensure that DST space is available.

- **Characterization** - The Tank Waste Characterization Project is responsible for sampling and characterizing tank waste for numerous projects. The SST IS Project and the Tank Waste Characterization Project must ensure that their work is integrated. Sampling and characterization efforts in support of the SST IS Project will be consistent with the activities and practices discussed in the annual sampling plans.

- **Tank Waste Retrieval Construction Projects** - Several construction projects (W-211, W-314, W-320, and W-151) will be occurring in the tank farms at the same time as the SST IS Project. There will very likely be a number of interfaces between these construction projects and the SST IS Project.

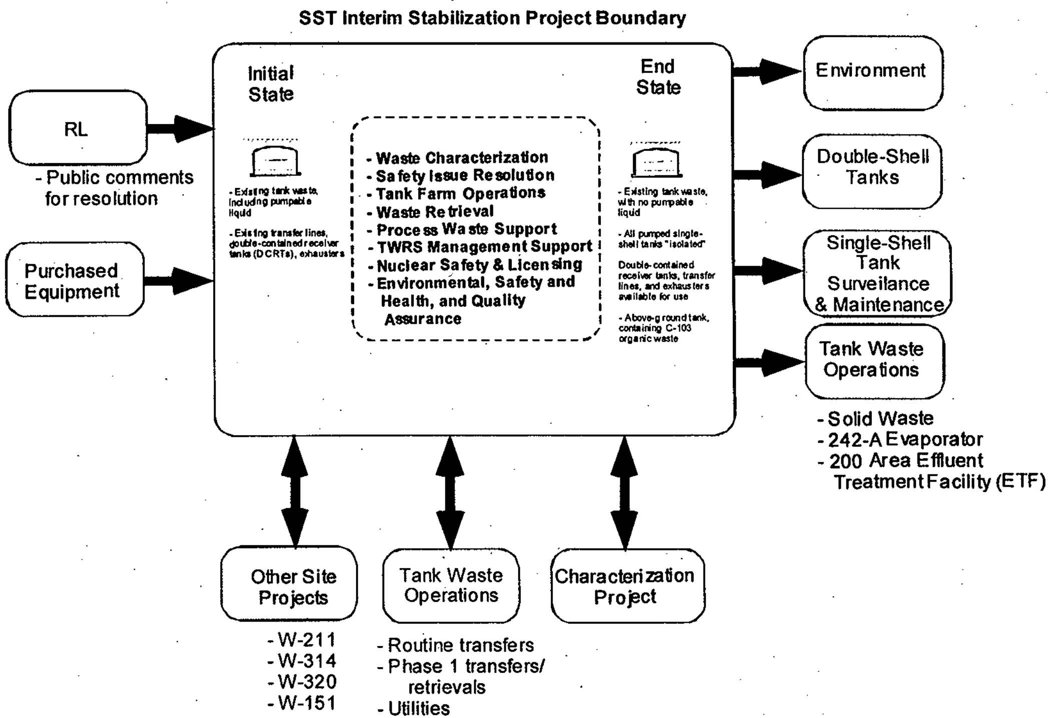


Figure 2-1. Single-Shell Tank Interim Stabilization Project System Boundary and Interfaces.

- **Tank Waste Retrieval Operations** - Depending on the final schedule for the SST IS Project, it may begin to intersect with the Phase 1 TWRS retrieval of waste. It is especially important that transfers by the SST IS Project do not impact waste feed envelopes defined for Phase 1. In addition, some of the product of the SST IS Project will be used in preparation of Phase 1 feed.

2.4.2 Physical Interfaces

- **Tank Waste Operations** - Tank Waste Operations' management of tank waste, pending waste retrieval operations, includes transfer of waste between tanks using the same tank farms, tanks, pipelines, and other equipment that will be used by the SST IS Project.

2.4.3 Internal Interfaces

- **Waste Characterization** - An important part of the SST IS Project is the continual sampling, characterization, and analysis of tank waste to ensure reliable pumping times and waste compatibility determination.

- **Safety Issue Resolution** - Safety Issue Resolution is responsible for compiling the basis for the removal of the organic layer in Tank C-103. Removal of the organic layer is independent of the closure of the organic unreviewed safety question.

- **Nuclear Safety and Licensing** - Nuclear Safety and Licensing is responsible for ensuring that the safety Authorization Basis is in place for the operations that are required to carry out the SST IS Project.

- **TWRS Environmental** - Environmental is responsible for ensuring that proper permits and notices of construction (NOC) are written and transmitted through FDH and RL to the proper state and regulatory agencies. Environmental is also responsible for informing IS of any permit conditions that must be incorporated into their procedures before start-up.

- **Tank Waste Operations** - Tank Waste Operations is responsible for carrying out the day-to-day operational activities, maintenance, and surveillance and monitoring of the DST, SST, and double-contained receiver tank (DCRT) systems and transfer systems.

- **TWRS Management** - The TWRS management structure is responsible for establishing priorities and providing management direction and oversight to the SST IS Project.

- **Process Engineering** - Process Engineering is responsible for determining pump rates and durations, determining the probable behavior of waste during pumping and transfer, and conducting waste compatibility assessments. Process Engineering also will perform engineering studies or analyses to provide recommendations for improving pumping performance.

2.4.4 Inputs and Outputs

2.4.4.1. Inputs.

- **Public Review** - Any plan that identifies completion of the original Tri-Party Agreement milestone after September 2000 will be subject to a public comment period.

- **Management Direction and Support** - RL provides direction and funding for this project through FDH.

- **Purchased Equipment** - New equipment and materials from outside sources are an input to this project.

2.4.4.2. Outputs.

- **Saltwell Liquid to Double-Shell Tanks** - Approximately 26.1 million liters (6.9 million gallons) of liquid waste will be output to DSTs over the course of the project.

- **Gaseous Effluents** - Exhausters connected to the SSTs during pumping are expected to produce limited filtered gaseous effluents to the atmosphere and are addressed within the appropriate NOC.

- **Solid Waste** - Some contaminated equipment in use on the SST IS Project is expected to fail. In other cases existing equipment will have to be removed to enable installation of required equipment to support the SST IS Project. Current procedures exist to determine if the contaminated equipment is reusable or needs to be disposed of as waste. If the equipment is waste, these procedures will be used to properly categorize the waste and determine the disposal method.

2.5 SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT INITIAL STATES AND END STATES

2.5.1 Initial States

2.5.1.1. Single-Shell Tanks to be Interim Stabilized. Twenty-nine SSTs remain to be interim stabilized during the SST IS Project. The listing of these tanks, along with their present status and characteristics of their contents, is shown in Table 2-1. The tanks contain varying amounts of supernatant, saltcake, and sludge. The saltcake and sludge have varying amounts of pumpable liquid in them. Figure 2-2 identifies the current status of SSTs.

Interim stabilization of the tanks requires certain equipment and pretesting, which may include the following:

- Standard Hydrogen Monitoring System (SHMS)
- Flammable gas monitor
- Exhauster
- Saltwell screen
- Saltwell pump assembly
- Valve pit
- Cleanout box
- Qualified transfer lines
- Weight factor instrument and equipment cabinet
- Portable instrument control skid
- Double-contained receiver tank
- Tank waste sampling
- Dilution system.

The basic equipment to support pumping is shown in Figure 2-3. Table 2-2 identifies the present physical status and requirements of equipment and processes for the 29 SSTs to be pumped during the SST IS Project.

2.5.1.2. Double-Shell Tanks. The DSTs that will receive liquid from the SSTs include SY-102, AP-107, AP-106, AY-102, AP-108, and AN-101. Other DSTs may be used as required. These tanks contain various types and amounts of waste as described in *Waste Tank Summary Report for Month Ending October 31, 1997*, (Hanlon 1997). The quantity of waste in individual tanks changes from time to time. As liquids accumulate they are staged for evaporator use or, eventually, for Phase 1 feed delivery.

2.5.1.3. Tank Equipment and Waste Materials. Present status of tank equipment is included in Table 2-1.

2.5.1.4. Ancillary Facilities. A portable water heating system may be used for several tanks to dilute the waste that has characteristics for plugging transfer lines.

Table 2-1. Present Contents of Single-Shell Tanks to be Pumped. (2 Sheets)

Tank Number	[a] Supernatant Volume (L)	Pumpable Liquid Remaining (L)	Saltcake Vol (L)	Sludge Vol (L)	Total Curies in Tank [a] [decay date]	Cs-137 Curies in Liquid [b] [decay date]	Tc-99 Curies in Liquid [c] [decay date]	Total Curies in Liquid [d] [decay date]	Waste Compatibility Group	Special Conditions (1 gallon = 3.785 liters)
EAST										
A-101	1,920,000 [1]	2,599,000 [2,3]	1,670,000	0 (Hanlon) none extruded	2,780,000 1/1/94	1,000,000 1/1/94	869 1/1/94	1,940,000 1/1/94	complexed	Solids layer over liquid. [1] Trapped liquid layer treated as supernatant [2] Floating crust-like layer treated as saltcake [3] Calculation method A used
AX-101	690,000 [1]	1,570,000 [2,3]	2,080,000	0 (Hanlon) none extruded	3,700,000 1/1/94	483,000 1/1/94	458 1/1/94	940,000 1/1/94	noncomplexed	Solids layer over liquid in extrusion. Analyses in progress. No DL observed in top 10-11 segments. [1] Trapped liquid layer treated as supernatant [2] Floating crust-like layer treated as saltcake [3] Calculation method A used
BY-105	0	624,000 [1]	1,306,000 [2]	598,000 [2]	2,270,000 1/1/94	418,000 1/1/94	243 1/1/94	813,000 1/1/94	noncomplexed	Cs-137 based on grab; Tc-99, 86 percent soluble. [1] Calculation Method C [2] TCR Data
BY-106	0	902,000 [2]	2,070,000 [1]	360,000 [1]	2,390,000 1/1/94	563,000 1/1/94	391 Ci 1/1/94	1,100,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
C-103	282,000 [1]	285,000 [2]	0 [1]	451,000 [1]	4,150,000 1/1/94	62,400 1/1/94	213 1/1/94	122,000 1/1/94	complexed	[1] Volumes are determined from core sample recoveries which indicated higher sludge levels than reported by Hanlon. [2] Calculation Method B
WEST										
S-101	45,000 [1]	409,000 [2]	647,000 1	924,000 [1]	1,640,000 1/1/94	233,000 1/1/94	229 1/1/94	453,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method C
S-102	0 [1]	875,000 [2]	2,063,000 [1]	15,100 [1]	1,500,000 1/1/94	354,000 1/1/94	244 1/1/94	689,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
S-103	64,000 [1]	326,000 [2]	837,000 [1]	37,800 [1]	680,000 1/1/94	156,000 1/1/94	260 1/1/94	303,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
S-106	201,000 [2]	851,000 [1]	1,610,000 [2]	0 extruded	1,560,000 1/1/94	366,000 1/1/94	418 1/1/94	713,000 1/1/94	noncomplexed	[1] Calculation method A [2] Core Sample Data
S-107	53,000 [1]	262,000 [2]	261,000 [1]	1,109,000 [1]	1,240,000 1/1/94	171,000 1/1/94	93 1/1/94	334,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method C
S-109	0 [1]	560,000 [2]	2,100,000 [1]	49,000 [1]	783,000 1/1/94	84,800 1/1/94	454 1/1/94	165,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method E
S-111	87,000 [1]	759,000 [2]	1,430,000 [1]	526,000 [1]	924,000 1/1/94	334,000 1/1/94	511 1/1/94	652,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation Method C
S-112	0 [1]	453,000 [3]	1,957,000 [2]	23,000 [2]	1,840,000 1/1/94	466,000 1/1/94	476 1/1/94	907,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Best Basis inventory - 1,000 gal difference [3] Calculation method E
SX-101	4,000 [1]	535,000 [2]	1,300,000 [1]	424,000 [1]	1,550,000 1/1/94	290,000 1/1/94	131 1/1/94	564,000 1/1/94	complexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
SX-102	0 [1]	745,000 [2]	1,612,000 [1]	443,000 [1]	1,900,000 1/1/94	378,000 1/1/94	629 1/1/94	735,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method C
SX-103	4,000 [1]	903,000 [2]	2,029,000 [1]	435,000 [1]	2,370,000 1/1/94	508,000 1/1/94	648 1/1/94	989,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D

Table 2-1. Present Contents of Single-Shell Tanks to be Pumped. (2 Sheets)

Tank Number	[a] Supernatant Volume (L)	Pumpable Liquid Remaining (L)	Saltcake Vol (L)	Sludge Vol (L)	Total Curies in Tank[a] [decay date]	Cs-137 Curies in Liquid[b] [decay date]	Tc-99 Curies in Liquid[c] [decay date]	Total Curies in Liquid[d] [decay date]	Waste Compatibility Group	Special Conditions (1 gallon = 3.785 liters)
SX-104	0 [1]	858,000 [2]	1,809,000 [1]	515,000 [1]	2,140,000 1/1/94	418,000 1/1/94	548 1/1/94	813,000 1/1/94	noncomplexed	[1] No core sampling data available; information is from Hanlon, November 30, 1997 [2] Calculation method C
SX-105	0 [1]	1,004,000 [2]	2,309,000 [1]	276,000 [1]	2,310,000 1/1/94	517,000 1/1/94	775 1/1/94	1,010,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
SX-106	231,000 [1]	955,000 [2]	1,760,000 [1]	45,000 [1]	1,420,000 1/1/94	318,000 1/1/94	525 1/1/94	620,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
T-104	0 [1]	250,000 [1]	0	1,302,000 [1]	13,300 1/1/94	342 1/1/94	1.24 1/1/94	686 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997
T-110	0 [1]	87,000 [1]	0 [1]	1,397,000 [1]	19,300 1/1/94	225 1/1/94	14 1/1/94	452 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997
U-102	68,000 [1]	506,000 [2]	1,188,000 [1]	163,000 [1]	780,000 1/1/94	246,000 1/1/94	350 1/1/94	478,000 1/1/94	complexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-103	83,000 [1]	713,000 [2]	1,570,000 [1]	121,000 [1]	1,450,000 1/1/94	329,000 1/1/94	444 1/1/94	640,000 1/1/94	complexed	[1] Hanlon data suspect due to the amount of drainable liquid recovered in the top segment of the core samples. Core samples suggest there are 22,000 gal of supernate instead of the 13,000 gal listed in Hanlon. Tank Coordinator took Hanlon numbers and increased the supernate volume by 9,000 gal and reduced the saltcake volume by 9,000 gal and adjusted other volumes as needed [2] Calculation method D
U-105	140,000 [1]	644,000 [2]	1,320,000 [1]	121,000 [1]	1,200,000 1/1/94	324,000 1/1/94	446 1/1/94	630,000 1/1/94	complexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-106	57,000 [1]	251,000 [2]	700,000 [1]	98,000 [1]	646,000 1/1/94	172,000 1/1/94	297 1/1/94	332,000 1/1/94	complexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-107	117,000 [1]	643,000 [2]	1,363,000 [1]	57,000 [1]	445,000 1/1/94	174,000 1/1/94	344 1/1/94	340,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-108	91,000 [1]	720,000 [2]	1,570,000 [1]	110,000 [1]	893,000 5/96	329,000 5/96	542 1/1/94	641,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-109	72,000 [1]	665,000 [2]	1,499,000 [1]	182,000 [1]	859,000 1/1/94	271,000 1/1/94	586 1/1/94	529,000 1/1/94	complexed	[1] Hanlon, November 30, 1997 [2] Calculation method D
U-111	0 [1]	419,000 [2]	1,150,000 [1]	98,400 [1]	938,000 1/1/94	198,000 1/1/94	230 1/1/94	386,000 1/1/94	noncomplexed	[1] Hanlon, November 30, 1997 [2] Calculation method D

a Total curies in tank from Best-Basis Inventory.
b Total liquid ^{137}Cs assumed to be 80 percent of total tank ^{137}Cs from Best-Basis Inventory.
c Total liquid ^{99}Tc assumed to be total tank ^{99}Tc from Best-Basis Inventory.
d Total liquid is sum of 80 percent ^{137}Cs, 80 percent ^{137m}Ba, 100 percent ^{99}Tc from total tank Best-Basis Inventory.

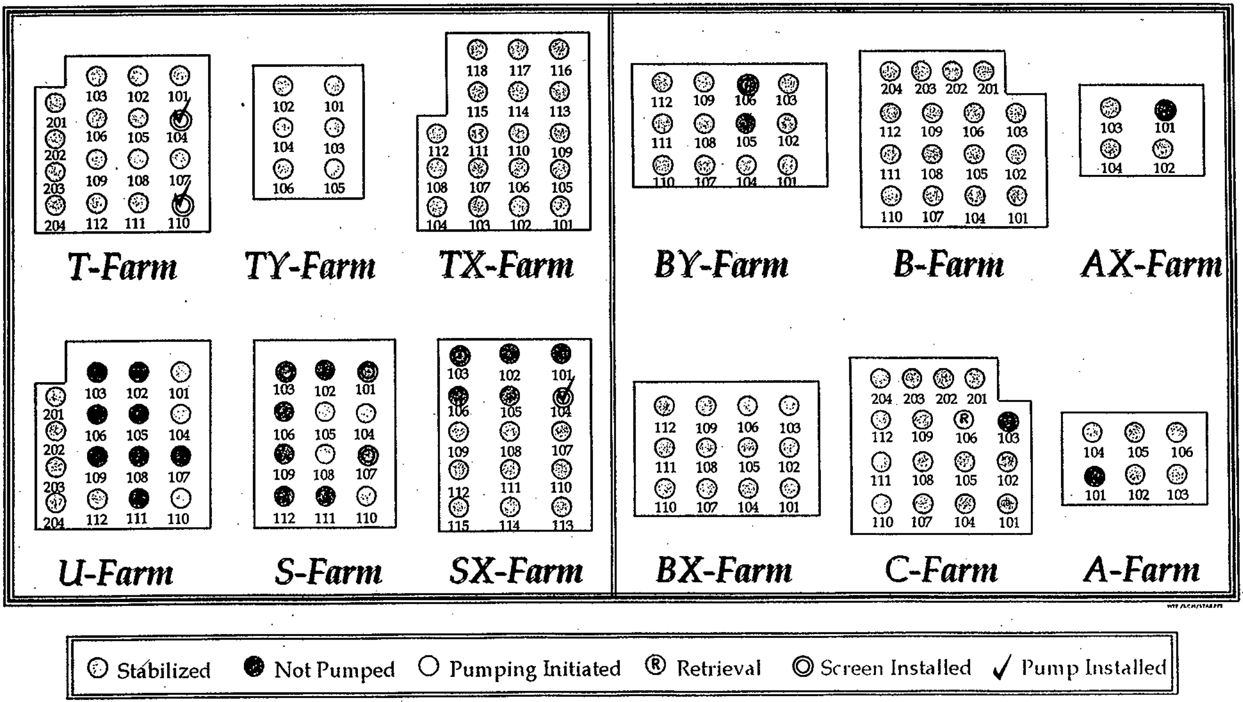
Figure 2-2

SINGLE SHELL TANK FARMS

Interim Stabilization Progress Status

Interim Stabilized	119
Pumping Initiated	3
Retrieval	1
Not Pumped	26
TOTAL SSTs	**149**

Status as of December 8, 1997



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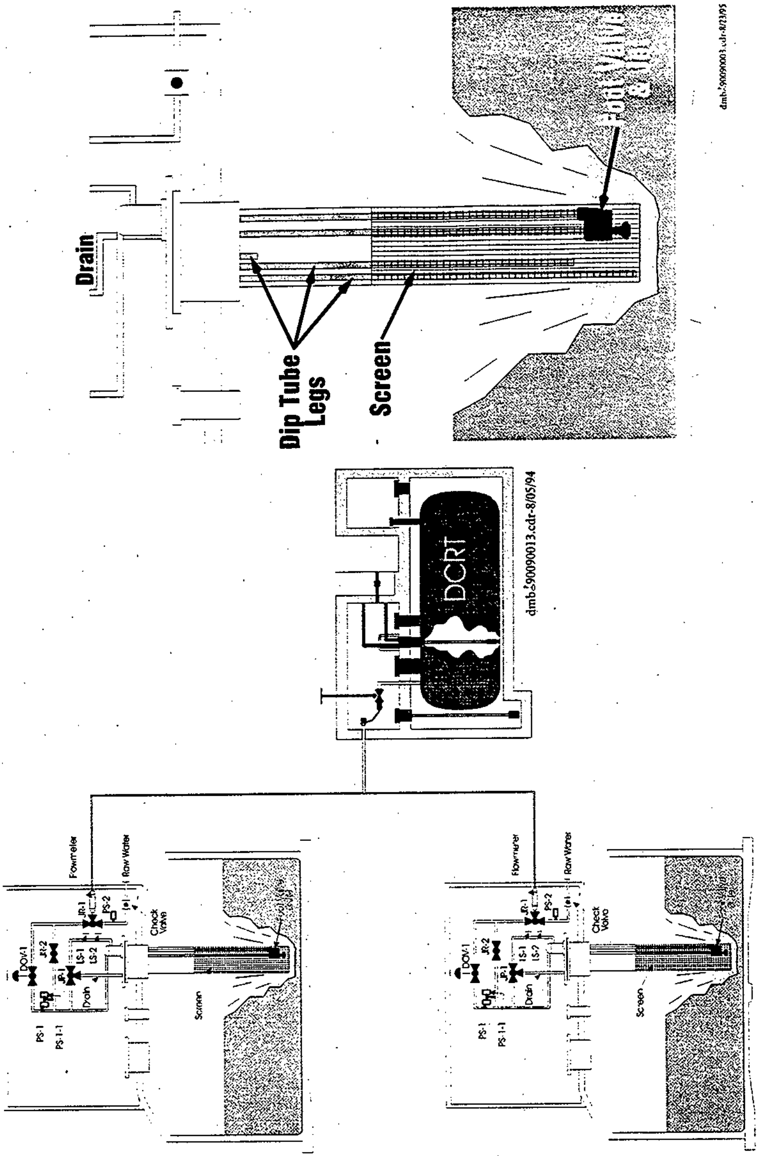

Figure 2-3. Saltwell Pumping System.

Table 2-2. Equipment Status/Requirements for Single-Shell Tank Interim Stabilization Project. (2 Sheets)

Tank #	SHMS	FGM	Exhauster	Saltwell Screen	Saltwell Pump	Valve Pit Jumper	Cover Blocks	Transfer Lines Hydro'd	WFIE Cabinet	PIC Skid	DCRT	Sampling	Dilution System
A-101	R	R	C	C	R	R (3)	R	R (4)	N/A	C	N/A		R
AX-101	R	R [1]	R	C	R [1]	C	C	R [1]	N/A	R [1]	N/A		R
BY-105	C	R	R	R	R	N/A	R	R (1)	R	N/A	C		
BY-106	C	R	R	C	R [2]	N/A	R	R (1)	R	N/A	C		
C-103	NR [4]	2 R	R	C	R	R(1)	R	R	N/A	R	N/A		R
S-101	C	R	R	C	R	R	R	R (3) OGT	N/A	R	C		
S-102	R	R	R	C	R	R (2)	R	R (4) OGT	N/A	R	C		
S-103	NR [4]	R (2)	R	C	R	R	R	R (4) OGT	N/A	R	C	R	
S-106	C	R	R	R	R	R (2)	R	R (4) OGT	N/A	R	C		
S-107	R	R	R	C	R	R (1)	R	R (2)	N/A	R	C		
S-109	R	R	R	R	R	R (2)	R	R (3)	N/A	C	C		
S-111	C	R	R	R	R	R (1)	R	R (2)	N/A	R	C		
S-112	C	R	R	R	R	R (1)	R	R (3)	N/A	R	C	R	
SX-101	C	R	C [3]	R	R	R (2)	R	R (3)	N/A	R	C	C	R
SX-102	R	R	C [3]	R	R	R (3)	R	R (4)	N/A	R	C	R	R
SX-103	R	R	C [3]	C	R	R (2)	R	R (4)	N/A	R	C	C	R
SX-104	C	C	C [3]	C	C	C	C	C	N/A	C	C	C	R
SX-105	C	R	C [3]	R	R	R (2)	R	R (3)	N/A	R	C	R	R
SX-106	C	R	C [3]	R	R	R (2)	R	R (4)	N/A	R	C	C	R
T-104	NR	C	NR	C	C	C	C	C	N/A	C	C	C	
T-110	C (NR)	C	NR	C	C	C	C	C	N/A	C	C	C	

Table 2-2. Equipment Status/Requirements for Single-Shell Tank Interim Stabilization Project. (2 Sheets)

Tank #	SHMS	FGM	Exhauster	Saltwell Screen	Saltwell Pump	Valve Pit Jumper	Cover Blocks	Transfer Lines Hydro'd	WFIE Cabinet	PIC Skid	DCRT	Sampling	Dilution System
U-102	R	R	R	R	R	R (2)	R	R (3)	R	N/A	C		
U-103	C	R	R	R	R	R (2)	R	R (3)	R	N/A	C		
U-105	C	R	R	R	R	R (3)	R	R (4)	R	N/A	C		
U-106	NR [4]	R (2)	R	R	R	R (2)	R	R (6)	R	N/A	R		
U-107	C	R	R	R	R	R (1)	R	R (2)	R	N/A	R		
U-108	C	R	R	R	R	R (2)	R	R (3)	R	N/A	R		
U-109	C	R	R	R	R	R (2)	R	R (3)	R	N/A	R		
U-111	NR [4]	R (2)	R	R	R	R (2)	R	R (3)	R	N/A	R	R	

[1] Should be completed by March 27th.
[2] Saltwell pump currently installed, however stabilization expects it needs to be changed out.
[3] Sludge cooler sufficient to fulfill exhauster requirement.
[4] A second FGM will be installed to monitor the dome space instead of the SHMS.
* 1 gallon = 3.785 liters.
Numbers in parentheses indicate quantity of item in that tank.

C = Completed.
DCRT = double-contained receiver tank.
DT = Dilution Tank.
FGM = flammable gas monitor.
OGT = Over Ground Transfer.
N/A = Not Applicable.
NR = Not Required.
PIC = portable instrument control.
R = Required.
SHMS = Standard Hydrogen Monitoring System.
WFIE = weight factor instrument enclosure.

2.5.2 End States

2.5.2.1. Single-Shell Tanks. All 29 SSTs listed in Table 2-1 will have had their pumpable liquid removed in satisfaction of the IS criteria defined in Section 2.7. Further, the SSTs will be isolated, meeting the isolation requirement of Section 2.7. The tanks will still contain the saltcake, sludge, and residual liquids. The tanks will remain in this state until retrieval activities are initiated.

2.5.2.2. Double-Shell Tanks. The DSTs will contain the additional liquids pumped from the SSTs (less the amount of water removed by the 242-A Evaporator) as a result of successful conclusion of the SST IS Project.

2.5.2.3. Tank Equipment and Waste Materials. Noncontaminated or decontaminated external tank equipment, such as exhausters, SHMSs, and pumping control systems, will be available for other operational uses. In-tank contaminated equipment such as pumps and saltwell screens, will remain in-tank until the onset of retrieval of the remaining tank contents. External equipment that cannot be decontaminated and reused will be transferred to Operations for ultimate disposal in the Solid Waste Program.

2.5.2.4. Ancillary Facilities. The water-heating systems will be available for other future projects in the TWRS facilities.

2.6 MISSION LIFE CYCLE

The SST IS Project life cycle is primarily one of "operation." However, some design, procurement, and installation functions are required for a number of the SSTs. In addition, the tanks will be "isolated" following completion of pumping. Because many of the tanks must be pumped at the same time to maintain schedules, it is expected that each tank will go through its own life cycle with time. The complete listing of the phases of the lifecycle are as follows.

2.6.1 Specification

A new aboveground double-shell holding tank is an option to be considered for holding the organic liquid portion of Tank C-103. Requirements analysis and specification generation will be performed for this new tank. Only minimum analysis will be necessary for "replacement-in-kind" specifications, such as those needed for exhausters and flammable gas monitors.

2.6.2 Procurement

This project will be dependent on the timely procurement/fabrication of a number of major pieces of equipment (e.g., pump instrumentation control skids, flammable gas monitors, and exhausters) and minor equipment (e.g., centrifugal pumps, jet pumps, and jumpers) and consumables.

It is anticipated that miscellaneous equipment such as the saltwell screens, jumper assemblies, pump assemblies, and similar items will be procured and fabricated at the Hanford shops.

Both onsite and offsite vendors will be used for procurement activities.

2.6.3 Installation

Nearly all of the 29 SSTs will require installation of the equipment necessary to pump and transfer the liquids. Only three tanks (T-104, T-110, and SX-104) have completed this process and initiated pumping.

2.6.4 Operation

The majority of the life cycle for this project will take place in the operation phase. Section 4.0 deals with the technical strategy for this phase and contains several figures depicting it. Tank pumping durations will vary from less than six months to over 30 months.

2.6.5 Isolation

Following pumping, each tank will be isolated per the requirement in Section 2.7.

2.7 MISSION-LEVEL REQUIREMENTS

The basic mission-level requirement for the SST IS Project is to remove the pumpable liquid from the 29 SSTs referenced in Section 2.5.1. The criteria for removal, as originally stated in the July 1984 letter from RL to the General Manager of Rockwell Hanford Operations, is excerpted below:

> "Proceed with removal of interstitial liquid (saltwell pumping) from those single-shell tanks containing ≥ 50,000 gallons of interstitial liquid.
>
> "Once a saltwell system is installed, pumping will continue until the 0.05 gpm pumping limitation is achieved. In the event the system experiences a major maintenance failure and the tank contains more than 50,000 gallons, the system will be repaired/replaced and restarted. If the tank contains less than 50,000 gallons and the 0.05 pumping limit has not yet been achieved, an engineering evaluation of the problem, economics of repair, and personnel radiation exposure will be conducted to determine the feasibility of further

pumping. The decision to continue or not continue pumping will be based upon what is considered technically and economically practicable and consistent with as low as reasonably achievable (ALARA) principles.

"If a single-shell tank is not scheduled for saltwell pumping, it will be supernate pumped if it has ≥ 5,000 gallons of supernatant liquid. (Criterion for free standing supernatant is 5,000 gallons)." (Lawrence 1984)

This requirement is prescribed in the TWRS administrative procedure "Tank Farm Facility Interim Stabilization Evaluation" (LMHC 1997a).

An additional major requirement is that each SST shall be "interim isolated" following successful IS. Isolation for this project is defined as that condition reached after placing at least one physical barrier to the passage of contaminants between an inactive contaminated facility and the general environment. Specific requirements are called out in the "Criteria for Interim Isolation of Radioactively Contaminated Tank Farm Facilities at Hanford" (Alstad 1990), and are proceduralized in "Tank Farm Facility Interim Isolation" (LMHC 1997a).

The SST IS Project, its systems, and its processes must also satisfy numerous externally imposed requirements and guidance. These requirements also dictate, in part, the work scope, schedule, and budget for the tasks supporting the SST IS Mission. Sources of these requirements include promulgated laws and regulations, orders and directives, implementing procedures, contractual documents, and other planning guidance. The requirements derived from these sources are categorized into 20 functional areas (Table 2-3) and are maintained in the *Environmental Requirements Management Interface Database* (ERMI n.d.).

Table 2-3. Standards and Requirements Identification Documents for Functional Areas.

1. Management Systems	11. Radiation Protection
2. Quality Assurance	12. Fire Protection
3. Configuration Management	13. Packaging & Transportation
4. Training & Qualification	14. Environmental Restoration
5. Emergency Management	15. Decontamination & Decommissioning
6. Safeguards & Security	16. Waste Management
7. Engineering Project	17. R&D and Experimental Activities
8. Construction Project	18. Nuclear Safety
9. Operations	19. OS&H
10. Maintenance	20. Environmental Protection

OS&H = Occupational Safety and Health. R&D = Research and Development.

The requirements and guidance from all sources are considered when developing the SST IS Project technical baseline, when defining mission work scope, and for establishing administrative systems. HNF-1883, Section 3.0 "Requirements" (Freeman 1998) provides additional detail on requirements and guidance, and Appendix C identifies those externally imposed requirements that specifically affect the SST IS Project.

2.8 SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT GOALS, OBJECTIVES, AND MEASURES OF SUCCESS

2.8.1 Goals and Objectives

The primary goals and objectives for the SST IS Project mission are derived from the Tri-Party Agreement (Ecology et al. 1996) M-41 series milestones and identified in Table 2-4.

Table 2-4. Single-Shell Tank Interim Stabilization Project Goals and Objectives.

Goal	Objective
Operate and maintain facilities to provide continued safe and environmentally sound storage.	Remove pumpable liquid from 29 remaining single-shell tanks.
Reduce operating costs to acceptable levels necessary to safely manage the tank waste	Isolate 41 remaining single-shell tanks

2.8.2 Measures of Success

The measures of success for the SST IS Project are based on the desired end state for the project. These measures will be used to verify that the SST IS Project is effectively executing its mission. Table 2-5 summarizes the measures of success for the SST IS Project end state.

Table 2-5. Measures of Success for Single-Shell Tank Interim Stabilization Project.

Single-Shell Tank Interim Stabilization End State	Measure of Success
Single-shell tanks are pumped to meet interim stabilization criteria	Interim stabilization criteria of IP-0842 (LMHC 1997a) are met
Project is within schedule	Pumping starts on schedule, total schedule variance is within tolerance, and pumping efficiency goals are met
Project is within budget	Cost variance is within tolerance
Single-shell tanks are isolated	Completion of isolation documentation per IP-0842 (LMHC 1997a)

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3.0 KEY ENABLING ASSUMPTIONS, RISKS, AND RECOMMENDATIONS

3.1 ENABLING ASSUMPTIONS

The following assumptions are used for the scheduling of the SST IS Project. These assumptions were developed on the basis of the relative level of risk, and the schedule logic is constructed using these assumptions. In some cases, parallel actions are being pursued that represent higher risk alternatives that, if adopted, would reduce the schedule duration.

3.1.1 Project

3.1.1.1. U.S. Department of Energy Orders. DOE will continue to manage the Hanford Site and the SST IS Program. DOE orders are assumed to remain as they are with no critical changes affection the program.

3.1.1.2. Safety/Environmental Issues. It is assumed that there will be no new safety or environmental issues identified that affect the SST IS Program.

3.1.1.3. Tank C-106. Tank C-106 will be stabilized by Project W-320 and is not included in the SST IS scope. Interim isolation of Tank C-106 is included in the SST IS scope.

3.1.2 Operating

3.1.2.1. SY-102 Availability. Tank SY-102 is the only DST available in the 200 West Area to receive SST liquid waste. It is assumed that Tank SY-102 will remain available throughout the duration of the IS Program. This would assume that there are no new safety issues affecting that tank and that the current schedule for retrieval remains the same and does not get accelerated. This also assumes that all SST liquids are compatible with the existing liquids in the tank.

3.1.2.2. Leaking Single-Shell Tanks. The historical data show that we should assume that one new leaker will be declared each year. Though a leaker has not been declared in over four years, and the population of remaining tanks continues to decrease, it will be assumed that we experience no more than one leaker per year.

3.1.2.3. Program Interferences. In the case where a physical interference is identified with another program (e.g., retrieval) or construction project (e.g., W-320, W-211), the SST IS Project will evaluate that interface and any associated impact. The SST IS will fund the workarounds required to minimize the impact. At this time, the technical baseline described in HNF-1901, *Tank Waste Remediation System Retrieval and Disposal Mission Technical Baseline Summary Description* (Treat et al. 1998) is assumed to be implemented.

3.1.2.4. Equipment Procurement. Major equipment can continue to be provided offsite as has been done previously.

3.1.2.5. Cross-Site Transfer Capability. The capability to transfer waste cross-site from the SY-102 DST to the 200 East DST tanks will continue to be available. This assumes that the existing cross-site line would remain available until the new cross-site line (Project W-058) is available to operations. Turnover of the new cross-site transfer system to Operations is scheduled for April 1998.

3.1.2.6. Existing Single-Shell Tank Farm/Transfer Lines. The existing piping in the SST farms and transfer lines to the DST receiver tanks is primarily single-wall direct-buried piping. It is currently acceptable to use that piping for the removal of SST liquid waste. It is assumed that this piping remains available for use by this program. The majority of this piping will be disconnected or capped during the isolation phase of this program.

3.1.2.7. Transfer Line Integrity. Existing piping to be used for the transfer of SST liquid waste requires hydrostatic testing before it is used. It is assumed that no greater than 20 percent of those transfer lines will fail. Typical options available upon line failure include (1) line repair, (2) alternate routing, (3) aboveground transfer piping

3.1.2.8. Evaporator/Double-Shell Tank Space. The SST liquid waste is transferred to the DST tank farms. It is assumed that tank space is available to receive the SST liquid and that if evaporator campaigns are necessary, they will be performed.

3.1.2.9. Comingling of Waste. It will be assumed for scheduling purposes that noncomplexed, complexed, and complexed/transuranic waste will not be comingled. This affects a West Area tank (SY-102) because it is the only DST available to receive waste. This requires that the waste types will be handled in separated campaigns. Approval to comingle liquid waste will be addressed as a parallel effort. This approval is seen as high risk but has the potential to significantly improve the schedule.

3.1.2.10. Standby Exhausters. Exhausters will be mechanically capable of physical connection to a maximum of 3 tanks. The capability is based on physical system parameters and physical limitations in the farm. Standby is defined as physically connected to the tank and isolated by a valve at the tank riser and a valve at the exhauster, if connected to multiple tanks. The exhauster will only be started and run during the period of time when the gas concentrations exceed the lower flammability limit of 25 percent.

3.1.2.11. End-State Analysis. The organic nitrate end-state analysis will be acceptable for each of the SST tanks after the removal of the liquid.

3.1.2.12. Single-Shell Tank Pumping Performance. Historical data will be utilized to set the anticipated pumping rates, durations, and efficiencies. Pumping rates will utilize waste type and characterization data. Pumping duration will be determined from the estimated liquid available at the projected pumping efficiency rate of 60 percent.

3.1.2.13. Operator Training. The aggressive schedule for saltwell pumping will require the addition of a significant number of operators. This is also affected by the bargaining unit policy of bumping from the reduction of staff at other facilities. It will be assumed that an eight-month lead time will be required to obtain and train any additional operators.

3.1.2.14. Operator Turnover. As a result of the ongoing and projected downsizing of Project Hanford Management Contract (PHMC) facilities, an excess of facility operators and other crafts has been declared under the 1997 Labor Agreement between FDH and the Hanford Atomic Metal Trades Council, AFL-CIO. There is a potential for these bargaining unit personnel to displace the bargaining unit personnel currently assigned to the SST IS organization. The turnover rate resulting from the operator displacements is assumed to be 25 percent annually.

3.1.2.15. Exhauster Fabrication. Any new exhausters will be fabricated to the requirements of a major stack but permits will be approved allowing minor stack designation. This allows for flexible usage in the future.

3.1.2.16. Exhausters. Four of the six exhausters procured by the stabilization program are available. Two of the exhausters are being moved to project W-320 and are not available for use.

3.1.3 Technology/Equipment

3.1.3.1. Tank BY-105 Cement. In 1966, 57.2 metric tons (63.0 short tons) of Portland cement were added to Tank BY-105 to test its properties as an immobilization agent for liquid waste. The consistency or configuration of the resultant cement mixture has not been established. Sampling is scheduled for late in FY 1998. It is assumed that either a technology new to TWRS operations or additional equipment will be required to cut through the cement mixture to allow installation of the saltwell screen.

3.1.3.2. Tank C-103 Organic Layer. For processing purposes, it is assumed that the organic layer in Tank C-103 will be removed before the IS of that tank. Equipment new to TWRS operations will be acquired to perform this task. Authorization to pump the tank with the organic layer in place will be pursued as a parallel effort. This approach is seen as high risk.

3.1.3.3. Hot Water Dilution Systems. Several of the tanks remaining to be stabilized contain waste that requires dilution to minimize the potential of transfer line plugging or gelling during transfer or within a DCRT before delivery to the DST. It is assumed that a maximum of nine skids will be required for dilution of these tanks. These skids will include a water tank, a single-pass electric heater, and a pump.

3.1.4 Permitting

3.1.4.1. Passively Ventilated Tanks. As is the current practice, passively ventilated tanks will not require an NOC.

3.1.4.2. SX Tank Farm Exhauster Permitting. The SX Tank Farm exhauster will be permitted as a minor stack and authorized for use of the saltwell pumping of all remaining SX farm tanks.

3.1.4.3. Portable Exhauster Permitting. The NOC approval will designate all portable exhausters as minor stacks. This is based on projected run time in the standby mode and currently available sampling.

3.1.4.4. Tank A-101 Authorization Basis. Tank A-101 will be pumped using the Basis for Interim Operation (BIO) as the Authorization Basis. The requirements for saltwell pumping Tank A-101 will be made consistent with those used for all other SSTs. This will provide consistent controls and training while providing equivalent overall safety.

3.1.4.5. Authorization Basis (Flammable Gas Facility Group 2). The Authorization Basis for the saltwell pumping of FG2 tanks submitted on August 21, 1997, will be approved and transmitted to the PHMC no later than March 30, 1998. Assumptions for the content of the safety evaluation report (SER) are as follows.

- The requirement for standby exhausters does not require them to provide a safety class function.
- RL will direct use of standby exhausters on all remaining unstabilized tanks with the exception of Tanks T-104 and T-110 and the SX Tank Farm.
- Exhausters will not be required for emergency pumping.
- Flammable gas monitoring equipment will be required in two locations per tank. The dome space will be monitored and a separate flammable gas monitor will be operated in the pump pits.

3.2 MAJOR RISKS

The Stabilization Critical Risk Management List (Table 3-1) identifies the critical risks as requested by RL in letter 98-WSD-034 (Sieracki 1998).

Risks associated with the SST IS Project were addressed at two levels. Technical basis review documents and associated cost-estimating input sheets (see Section 6.1) document lower level risks and mitigating actions. Higher level risks that have the potential to impact the project as a whole were identified by senior management review of the project mission and execution plans. A risk list was established and potential critical risks were identified. Risk likelihood and consequence were then evaluated using the criteria included in the "Risk Management Plan," HNF-IP-0842, Vol. IV, Section 2.6 (LMHC 1997a), and the associated procedures. Risks with risk values of medium or high were placed on a Critical Risk Management List (see Table 3-1).

Table 3-1. Interim Stabilization Critical Risk Management List. (3 Sheets)

	Title	Owner	Assumption or Issues	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob.	Risk Cnsqnce	Risk Value (L-M-H)
STA-1	Leaking SSTs Will Continue to be Identified	Management/ Bill Ross	Emergency pumping of leaking SST will be initiated within 30 days.	This pumping will impact Stabilization and TWRS resources, with cost and schedule impacts. If a complexed tank leaked while SY-102 was full of non-complexed waste, that could have a large schedule impact.	Cost/ Schedule	Plan and allocate separate resources to support emergency pumping of one unspecified tank per year. Consider use of LR-56 truck to mitigate co-mingling failure.	Implement in staffing and resource program baseline.	H	M	H
STA-2	Equipment will continue to be procured and fabricated offsite.	Engineering/ Jim Kriskovich	HAMTC Agreements will not change resulting in different fabrication worksites.	Prior HAMTC agreements will not be adhered to, thus causing schedule delays.	Cost/ Schedule	None	Maintain consistency with awarding work.	H	M	H
STA-3	Watchlist water additions are allowed as "Flush" water.	Nuc. Safety/ Tom Geer	Dilution water added to saltwell is not an addition prohibited by watchlist law and implementing regulations.	Plugging of lines, delayed schedule; additional overground route installation.	ES &H	Request permission early enough to get approval.		H	M	H
STA-4	Other Facility Closures Affect Trained Personnel at TWRS	Management/ Bill Ross	As other facilities are closed, bargaining unit personnel "bump" lower senior operators.	This can have a large impact on the number of trained and certified operators available to Stabilization work.	Management	An assumption has been made that there will be only a 25 percent turnover rate for operators and an operator can be trained in eight months to do Stabilization work.	Implement staffing turnover as a constraint in program schedule baseline.	H	M	H
STA-5	A management assessment will be adequate documentation for start of the DCRT. No RA will be required.	Management/ Bill Ross	A TWRS Management Assessment is assumed.	Significant Baseline Schedule impact if DOE requires Readiness Assessment.	Schedule	None		H	M	H
STA-6	Pumping Duration's for SSTs Are Accurate	Process Eng./ Vic Boyles	The schedule for SST pumping has as it's backbone the estimated pumping duration's.	If these estimates are not representative, increased duration's may drive the scheduled completion out.	Technical	The pumping duration's will be reevaluated on an ongoing basis and updated completion schedule will be reviewed with FDH.	Use of submersible pumps. Evaluate multiple pump installations on long-duration pumping tanks, larger diameter screens, etc.	M	H	H
STA-7	New Technology for C-103	Process Eng./ Vic Boyles	C-103 has an organic layer that must be removed before pumping.	Layer removal is critical path for C-103 completion.	Technical	Plan, design & Test Removal & Storage activities.	Include cost and schedule for these activities in Baseline.	M	H	H
STA-8	New Technology for BY-105	Process Eng./ Vic Boyles	BY-105 has concrete in it. Standard saltwell installation techniques are not expected to be effective.	Plan for significant activity to design, test, and install saltwell	Technical	Sample BY-105 to verify extent of concrete distribution.	Include cost and schedule for these activities in Baseline.	M	H	H

Table 3-1. Interim Stabilization Critical Risk Management List. (3 Sheets)

	Title	Owner	Assumption or Issues	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob.	Risk Cnsqnce	Risk Value (L-M-H)
STA-9	Flammable gas evolution may limit the number of tanks pumped simultaneously using 1 DCRT.	Process Eng./ Vic Boyles	Current calculations will limit the number of SSTs which can be pumped concurrently due to low assumed airflow rate in supporting calculations.	Baseline schedule will not be met. Delay in West Area saltwell pumping resulting in interference's with Feed Delivery Mission	Technical	Perform tracer gas study to verify tank ventilation rate. Update BIO basic calculations. Open tank nozzle to provide assured ventilation. Consider addition of inlet flowmeter.	Include all activities in baseline cost and schedule.	M	H	H
STA-10	Authorization Basis modification to modify material balance controls.	Nuc. Safety/ Tom Geer	Multiple saltwell in West Area pumping cannot meet material balance controls.	Baseline schedule will not be met. Delay in West Area saltwell pumping resulting in interference's with Feed Delivery Mission.	Technical	Conduct studies to determine appropriate I&C control to meet saltwell pumping schedule. Balance risk of leaking from tank to risk of leakage from failed lines.	Include Authorization Basis activities in program baseline.	H	M	H
STA-11	SX Farm Sludge Cooler and Core Sampling NOC	Environmental/ Brad Erlandson	PTE for Sludge Cooler Stack when combined with Core Sampling PTE may trigger NOC as major stack.	Delay of completion of SX farm pumping or sampling	Technical	Environmental needs to complete NOC's.		H	M	H
STA-12	Master component shutdown interlocks	Engineering/ S. Rifaey	Complexity of control systems has many chances for spurious trip and resultant pump system shutdown.	TOE is decreased due to downtime and restart evaluation.	Technical	Perform RAM analysis and recommend I & C modifications	Include study and recommendations in baseline plan.	H	M	H
STA-13	Line Plugging	Stabiliztn Ops/ J.R. Biggs	Saturated salt solutions will crystallize upon cooling.	Line Pluggage	Technical	Dilution systems will be installed on tanks with solution temperature over 100 degrees F. Solution prediction and line temperature loss evaluation are planned for each transfer route.	Activities included in program baseline.	H	M	H
STA-14	102-SY Pump Failure	Tank Farm Ops/ Dale Allen	102-SY pump required for cross-site transfer.	Baseline schedule requires multiple cross-site transfers per year.	Technical	Spare pump, In-Pit repair procedures utilized for previous failure. This item would be funded from Operations.	None	M	H	H
STA-15	Privatization Feed Delivery Schedule	Management/ Bill Ross	Ongoing negotiation may result in significant feed transfer and delivery requirements, including west area retrieval.	Interference's with Baseline Schedule.	Management	Update transfer system evaluation when contacts are finalized.	Include evaluation in baseline cost and schedule.	M	M	M
STA-16	Allowance for Labor disruptions due to contract negotiations.	Management/ Bill Ross	Labor disruptions.	Delay in Baseline Schedule	Management	None		L	H	M

Table 3-1. Interim Stabilization Critical Risk Management List. (3 Sheets)

	Title	Owner	Assumption or Issues	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob.	Risk Cnsqnce	Risk Value (L-M-H)
STA-17	Stabilization Activities Impact on Retrieval Activities	Management/ Bill Ross	An increase in farm activities, work planning activities, and oversight activities was identified in Retrieval planning. Stabilization activities will increase that load further.	Stabilization activities will place an additional burden on administrative, planning, and oversight resources. Personnel resources may also need bolstered.	Schedule	We will integrate schedules, construct additional routes and equipment to eliminate impacts. Separate operations, maintenance, and program organization will be established to minimize resource conflicts.	Include cost and schedule for this in program baseline.	M	M	M
STA-18	Critical Component Fails (244-S DCRT, 244-U DCRT)	Process Eng./ Vic Boyles	Saltwell pumping in West Area dependent on single failure mode pathways.	Unrecoverable schedule delays.	Schedule	Evaluate S and SY Farm pumping direct to SY-102. Evaluate contingency for 244-U DCRT.	Include activities in program baseline.	L	H	M
STA-19	The Lab will remain operational.	Lab Support/ Cary Seidel	Regulatory Issues could potentially shut down the lab.	Lab shutdown will result in delay of well startup and waste transfers.	Schedule	Maintain direct matrix support from the lab to keep apprised of lab status.		M	M	M
STA-20	Saltwell end state WRT. Organic Safety Issue	Nuc. Safety/ Tom Geer	Resolution of organic USQ may prevent meeting stabilization criteria.	Delay in the completion of Stabilization Program	Schedule	None	RL to decide whether leading tank or organic end-state is safer.	L	H	M
STA-21	Waste Volumes in SY-102	Waste Tk Ops/ C. Bryan	The current cross-site transfer of waste from SY-102 will be necessary; it is the only DST receiver available for SSTs in West Tank Farms.	RA for W-058 is not is not complete. The current cross-site line may not pass another hydro test.	Technical	Complete the ORR & Start-up of the Cross-site transfer system. Continue to use existing direct buried lines.	Meet the schedule.	L	H	M
STA-22	Ventilating C-103 with the exhausters we are procuring	Engineering/ Jim Kriskovich	The organic and Tox in the headspace could lead the Toxicological NOC above the limits. This could require some type of treatment or abatement system (I.e., Carbon Absorption.	May not be able to ventilate this tank with the exhauster that is currently planned	Technical	Identify the run time in the NOC and show that we will not exceed the limits.		M	M	M
STA-23	Multiple tanks pumping simultaneously compatibility	Engineering/ Jim Kriskovich	Compatibility program for multiple operating simultaneously not defined.	Pumping waste compatibility requirements will limit the number of tanks pumped simultaneously, thus causing a baseline schedule impact.	Technical	Compatibility assessments planned in baseline.	Assess if additional compatibility procedure required.	M	M	M
STA-24	OSR Violation will occur due to multiple tanks needing 2 hr check,	Nuc. Safety/ Tom Geer	Physical constraints on operators ability to get required readings.	Delayed readings of required data resulting in a potential OSR violation.	Technical	Increase staffing to allow adequate coverage.		M	M	M

3.3 RECOMMENDATIONS FOR RISK MITIGATION

Each item on the Single-Shell Tank Interim Stabilization Critical Risk Management List (see Table 3-1) was reviewed and a mitigation action was developed as necessary. These mitigating actions are identified on the list. To increase program certainty, many of the mitigating actions are included within the baseline project scope, schedules, and estimates. Because of the magnitude and complexity of this project, aggressive risk management is required to maintain the baseline schedule and cost.

Critical risk items and risk mitigation activities will be statused on a regular basis. Maintenance of risk status is the responsibility of the individual identified on the risk list.

4.0 TECHNICAL STRATEGY

4.1 TECHNICAL APPROACH

Using the enabling assumptions discussed in Section 3.1, a technical strategy was developed to complete the mission of removing the pumpable liquid from the remaining 29 SSTs. This strategy is discussed below.

4.1.1 Remove Pumpable Liquid

The project's primary mission will be accomplished by removal of pumpable liquid from the remaining SSTs and transfer of the liquid to the DST system for storage and volume management pending its use for immobilization feed. The remaining solids will be stored in the SSTs until retrieved for feed delivery to the pretreatment and immobilization facilities. To prevent intrusion of water, the SST piping and other access points will be cut, capped, and sealed pending waste retrieval for treatment and disposal. The nozzles in the pump pit will be sealed so that a misrouted waste transfer from another source cannot occur. Retrieval of the SSTs beyond Tank C-106 begins in 2004 and is scheduled to be completed by 2018 under the Tri-Party Agreement (Ecology et al. 1996).

4.1.2 Use Existing Technology

Use of the existing saltwell pumping technology will continue with the addition of necessary transfer, safety, and control systems needed to meet the approved Authorization Basis. Deployment of supplemental techniques or development and deployment of new technology will be required to complete the stabilization of C-103 and BY-105. In certain cases, additional risk-reduction technologies will be pursued to improve the likelihood of achieving the baseline schedule or improving overall performance (cost, schedule, and effectiveness). These initiatives are discussed in Appendix B. With the limited duration of the program, we do not expect to achieve dramatic performance improvement of the saltwell systems (i.e., we are at the limits of technology pending retrieval of the tank contents).

4.1.3 Use Existing Infrastructure

The SST IS Project will maximize use of the existing tank farm infrastructure (pumping systems, single contained lines, DCRTs, valve and transfer boxes, and the new cross-site transfer line available later this fiscal year). The 242-A Evaporator and the 200 Area Effluent Treatment Facility will be used to manage the DST tank space. Where necessary, the project will utilize sections of radiation-shielded, aboveground waste transfer lines to facilitate the transfer of pumped liquid to the DST system. If existing transfer lines fail or do not pass the pressure tests, alternative routings will be examined and, if necessary, temporary overground double-encased transfer lines will be installed and used.

4.2 PRIMARY TECHNICAL OBJECTIVES

The primary technical objectives needed to be achieved by the technical strategy are discussed below.

4.2.1 Expedite Schedule

To limit the potential leakage to the environment, the SST IS mission will be completed as early as possible. The long-duration pumping tanks have been scheduled to start as soon as practicable.

4.2.2 Comingling of Waste

Per DOE direction, complexed and noncomplexed wastes will not be comingled unless a strong cost-benefit case can be demonstrated on a tank-by-tank basis. In addition, no additional transuranic contaminated complexed waste will be generated by comingling operations. Prior requests for allowing comingling have been approved with the proper written justification and analysis of the waste involved. The most recent approval is pumping of complexed waste from Tank AY-101 to Tank AW-102.

4.3 TECHNICAL DEVELOPMENT

To pump the waste from Tanks BY-105 and C-103, additional technical development work is required. Tank BY-105 has a very hard surface layer of Portland cement (depth unknown) and Tank C-103 has a thin layer of approximately 19,000 liters (5,000 gallons) of organic liquid floating on approximately 280,000 liters (74,000 gallons) of supernatant.

In 1995, IS program personnel attempted to install a saltwell pump into an existing saltwell screen in Tank BY-105. When they began clearing the screen with a water lance, they found a very hard layer of material near the surface of the waste. Subsequent investigation identified that Portland cement had been added to this tank in 1966. Recent core-sampling activities also have encountered the hard material.

The normal system of water lancing was not successful in penetrating the material in the saltwell screen. Other technologies are needed to support installation of a new saltwell screen and subsequent pumping. This task consists of developing and testing equipment that can cut through the hard surface and allow a saltwell screen and pump to be lowered into the tank. This development work will include design, testing, obtaining the proper safety approvals, and working with existing Hanford Site craft personnel to train them in the use of this equipment.

Tank C-103 contains a floating layer of organic solvent that is approximately 5.08 centimeters (2 inches) deep or 18,920 liters (5,000 gallons). LMHC had previously recommended that Tank C-103 IS go forward without removing this organic layer. Because RL has not concurred with this recommendation, LMHC is planning to remove the organic layer via skimming to support completing the IS. A previous effort to complete the technology development for skimming this organic layer was deferred because of funding constraints. This plan includes efforts to finalize the development of the skimmer technologies, including evaluating technologies, procuring equipment, and providing onsite testing. This task includes developing an appropriate strategy for final disposal of the organic solvents. The task also will require completing a functions and requirements document to support design for facility modifications that will be required in association with the removal of the organics (e.g., a new design for an aboveground storage tank or loadout facilities for the LR-56 shipping cask).

One option identified by this planning effort would use two existing aboveground *Resource Conservation and Recovery Act of 1976*-compliant DSTs located near B Plant to store the skimmed organic waste from Tank C-103. The two tanks have been used in the past to store organics such as normal paraffin hydrocarbon and tributyl phosphate. Another option would use the rail cars that have the distillation system (used to process hexone several years ago) to process the organics at Tank C-103.

4.4 MASTER PROJECT SCHEDULE

An integrated SST IS master project schedule was developed utilizing the pumping durations identified in Table 4-1, the technical objectives discussed in Section 4.2, and the logistical limits imposed by the existing physical systems -- enhanced by limited additional construction. This schedule is presented in Figure 4-1. Primary schedule constraints include the following.

- **Comingling Restrictions.** Limitations imposed by the comingling restrictions result in three 200 West Area saltwell pumping periods. Noncomplexed waste is pumped first, because it represents the largest volume of waste that can be pumped in parallel. Once the noncomplexed waste pumping and transfer to the 200 East Area is completed, then the West Area complexed waste can be pumped and transferred to the East Area. The West Area pumping concludes with Tank U-106 which is believed to contain both complexed and transuranic waste. The overall duration of the saltwell pumping is constrained by this limitation.

- **Pumping Durations.** In the 200 East Area, the schedule durations are dominated by projected long pumping durations of AX-101 and A-101, and the "special cases" of BY-105 and C-103 which require installation of additional equipment before saltwell pumping is initiated.

Table 4-1. Pumping Durations.*

Area	Tank Farm	Tank	Pump Time (Days)	Waste Type
West	U Farm	U-102	316	Complexed
		U-103	450	Complexed
		U-105	380	Complexed
		U-106	147	Complexed/transuranic
		U-107	388	Noncomplexed
		U-108	452	Noncomplexed
		U-109	422	Complexed
		U-111	285	Noncomplexed
	S Farm	S-101	294	Noncomplexed
		S-102	595	Noncomplexed
		S-103	195	Noncomplexed
		S-106	495	Noncomplexed
		S-107	204	Noncomplexed
		S-109	380	Noncomplexed
		S-111	486	Noncomplexed
		S-112	308	Noncomplexed
	SX Farm	SX-101	375	Complexed
		SX-102	507	Noncomplexed
		SX-103	625	Noncomplexed
		SX-104	589	Noncomplexed
		SX-105	684	Noncomplexed
		SX-106	553	Noncomplexed
	T Farm	T-104	180	Noncomplexed
		T-110	180	Noncomplexed
East	A Farm	A-101	974	Complexed
	AX Farm	AX-101	784	Noncomplexed
	BY Farm	BY-105	436	Noncomplexed
		BY-106	621	Noncomplexed
	C Farm	C-103	77	Complexed

*Assuming 60 percent operating efficiency.

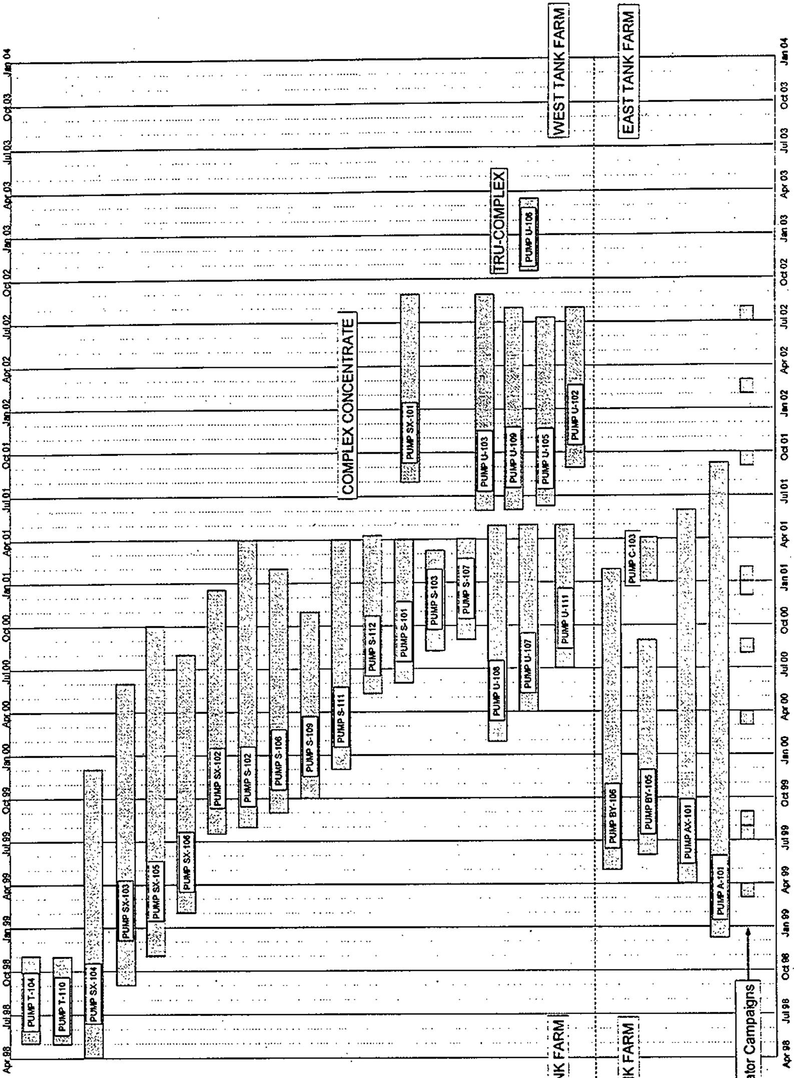


Figure 4-1. Single-Shell Tank Interim Stabilization Master Project Schedule.

4.5 FACILITY CONFIGURATION

The 29 SSTs, the connections to the DCRTs and the supporting DSTs can be summarized and modeled as shown on Figure 4-2. The figure indicates that the U Farm tank wastes are collected in the 244-U DCRT, while both the SX and S farm tank wastes are collected in the 244-S DCRT, and so on. The 200 West Area DCRT must be transferred to SY-102 and ultimately to the 200 East Area through existing or replacement cross-site transfer lines.

The piping for each of the DCRTs and SSTs that require pumping have been identified and are presented in summary form on Figure 4-3. Assessment of the current conditions of the piping systems and supporting control and leak-detection systems was developed and included in the Level 1 Logic developed for each SST.

4.6 RESULTS OF THE TECHNICAL STRATEGY

A model of the technical strategy, based on Figure 4-2, was constructed using the updated initial inventories, projected pumping durations and yields, and DCRT and DST system configurations. Overall system performance as a function of time, as well as individual subsystem performance, were evaluated using typical average and peak requirements. These requirements were compared to reasonable subsystem capabilities, and in some cases startup and operational schedules were adjusted to recognize these subsystem limits. Some key performance requirements and results are presented in Figures 4-4 through 4-8 and Tables 4-2 and 4-3 and are described below.

Figure 4-4 presents the pumping requirements of the DCRT and farm subsystems as a function of time. The bulk of the waste volume is removed from the S and SX Farm system, with the U Farm system the next highest producer. The distinctive shape of the U Farm production curve is caused by the comingling restrictions imposed by DOE.

Figure 4-5 illustrates the cumulative performance of the project baseline strategy. A total of 20.4 million liters (5.4 million gallons) of waste remains to be pumped. Over 80 percent of the total pumpable volume is removed by December 2000, with 99 percent removed by November 2002.

Figure 4-6 shows the cumulative amount of radioactive material (curies) removed by the project. The total curies entry represents the near-term risk from shorter lived isotopes such as cesium-137. The technetium-99 curve represents removal of long-term risk.

Figure 4-7 depicts the pumping requirements for the DCRT 244-S. The high loads required to be pumped from this tank make it the most likely "bottleneck" in the system. Other DCRT loads are much lower.

Figure 4-8 indicates that only seven cross-site transfers of liquid will be required over the life of the project.

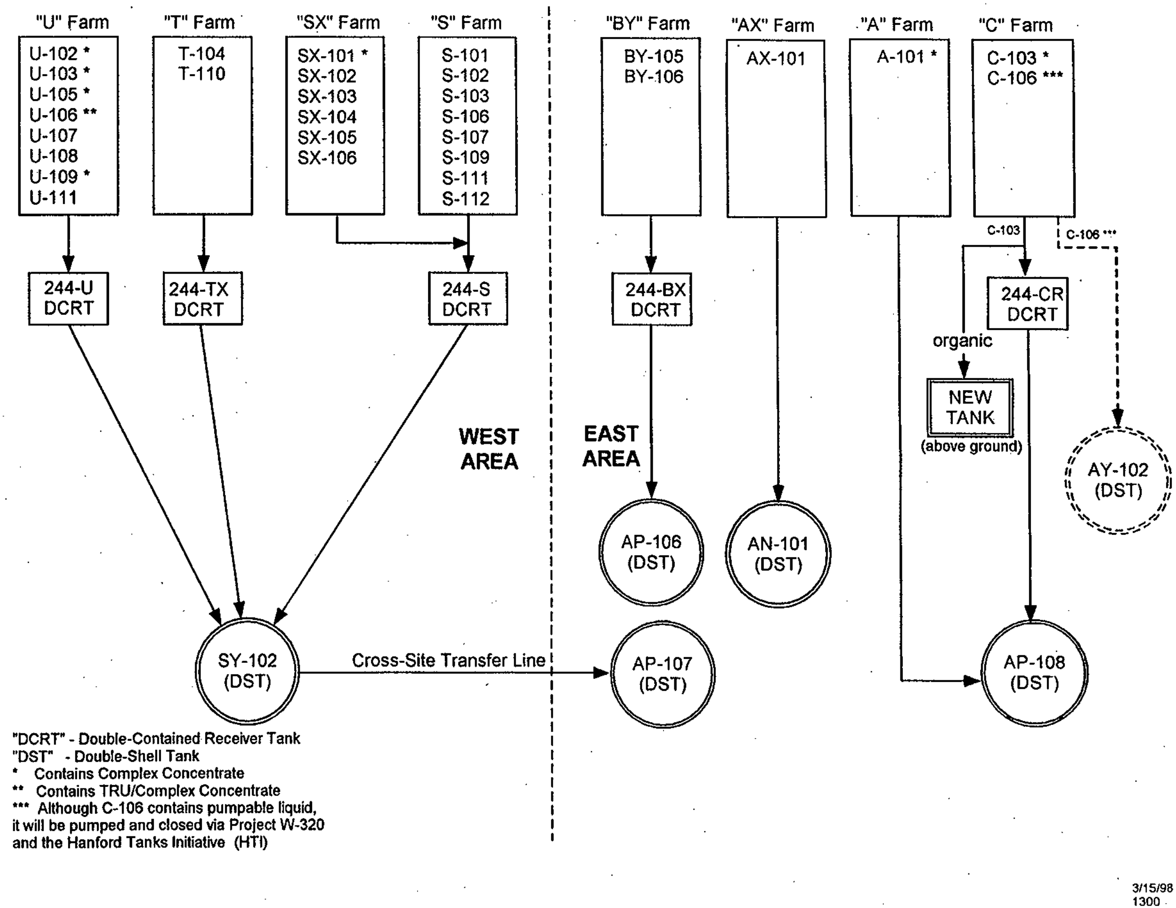


Figure 4-2. Waste Flow for Single-Shell Tank Interim Stabilization System Flow Diagram.

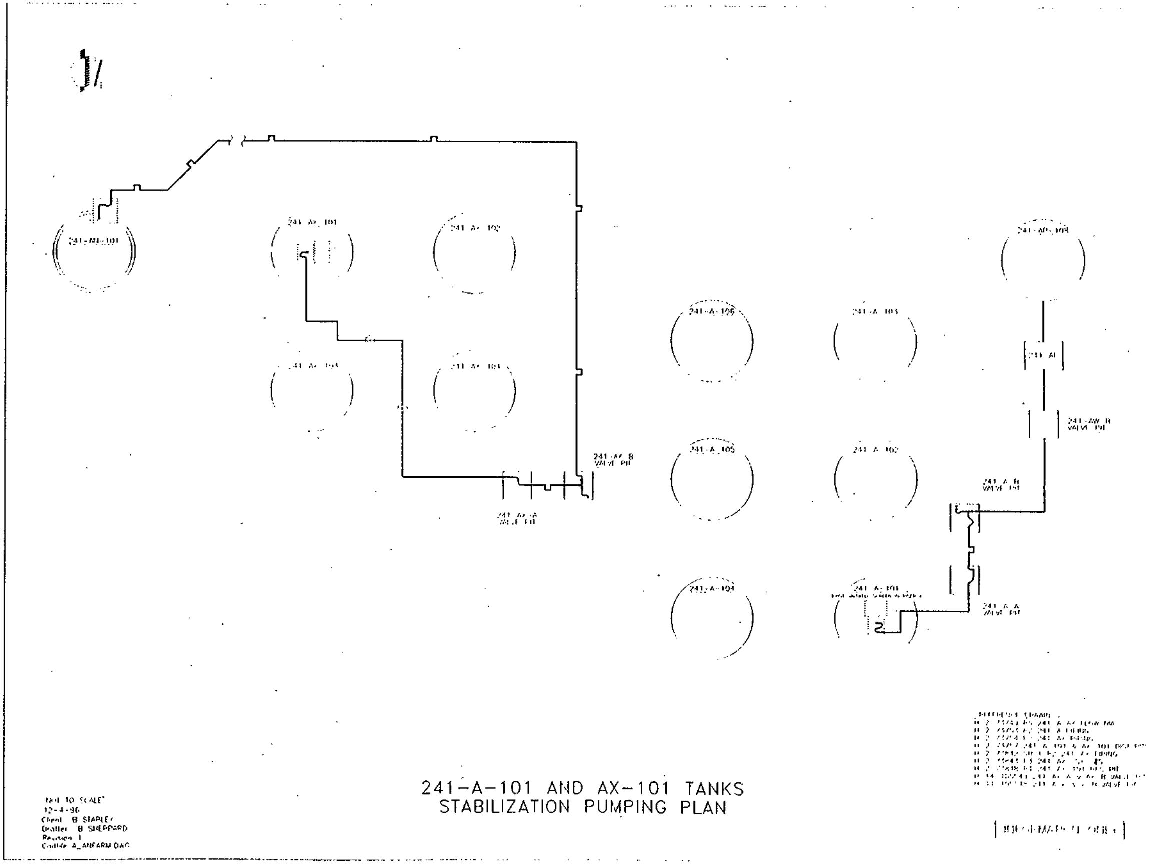


Figure 4-3a. A and AX m Piping Configuration.

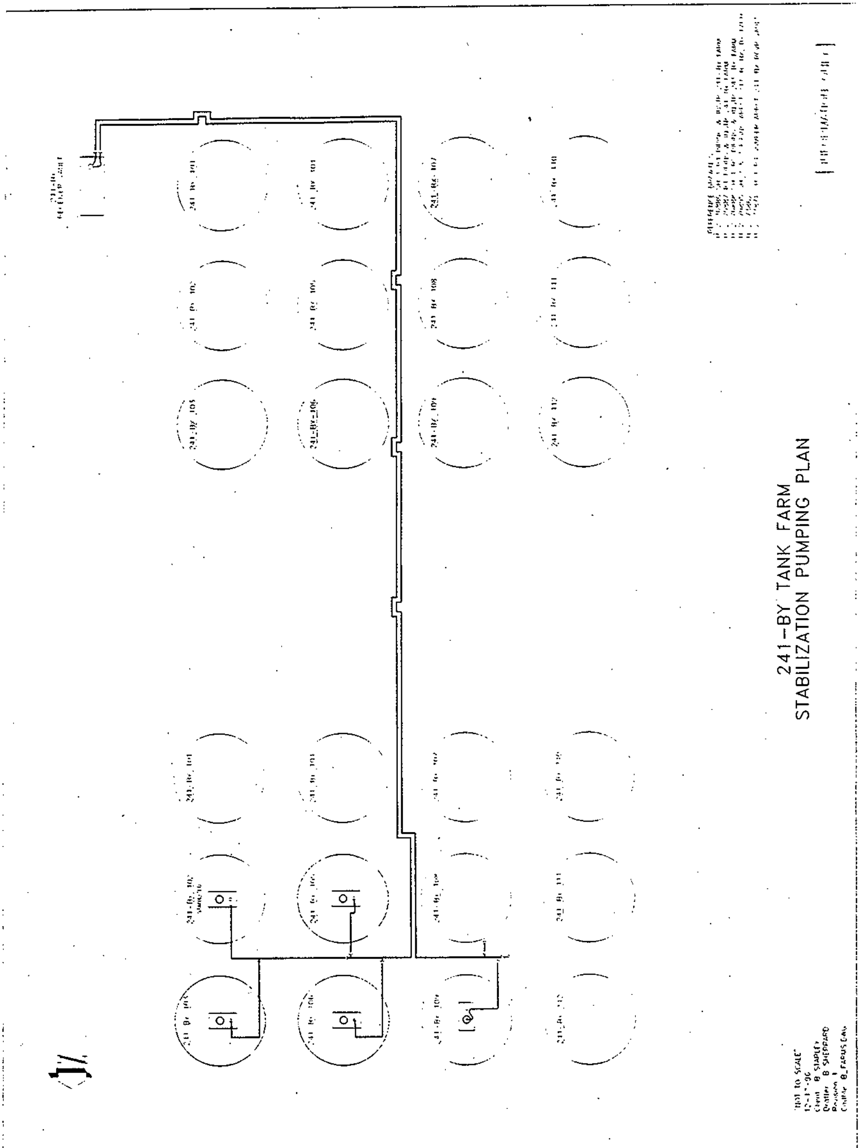
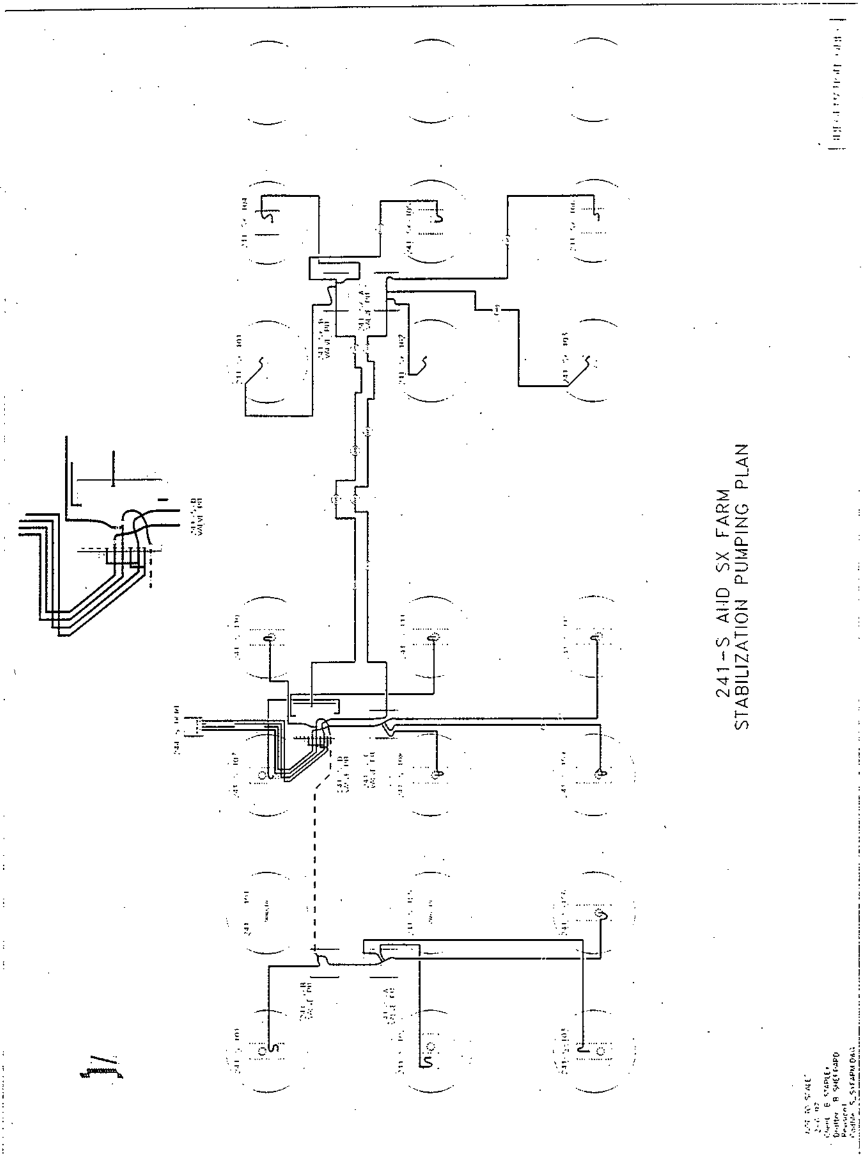


Figure 4-3b. BY Farm Piping Configuration.



4-3c. S and SX Farm Piping Configuration

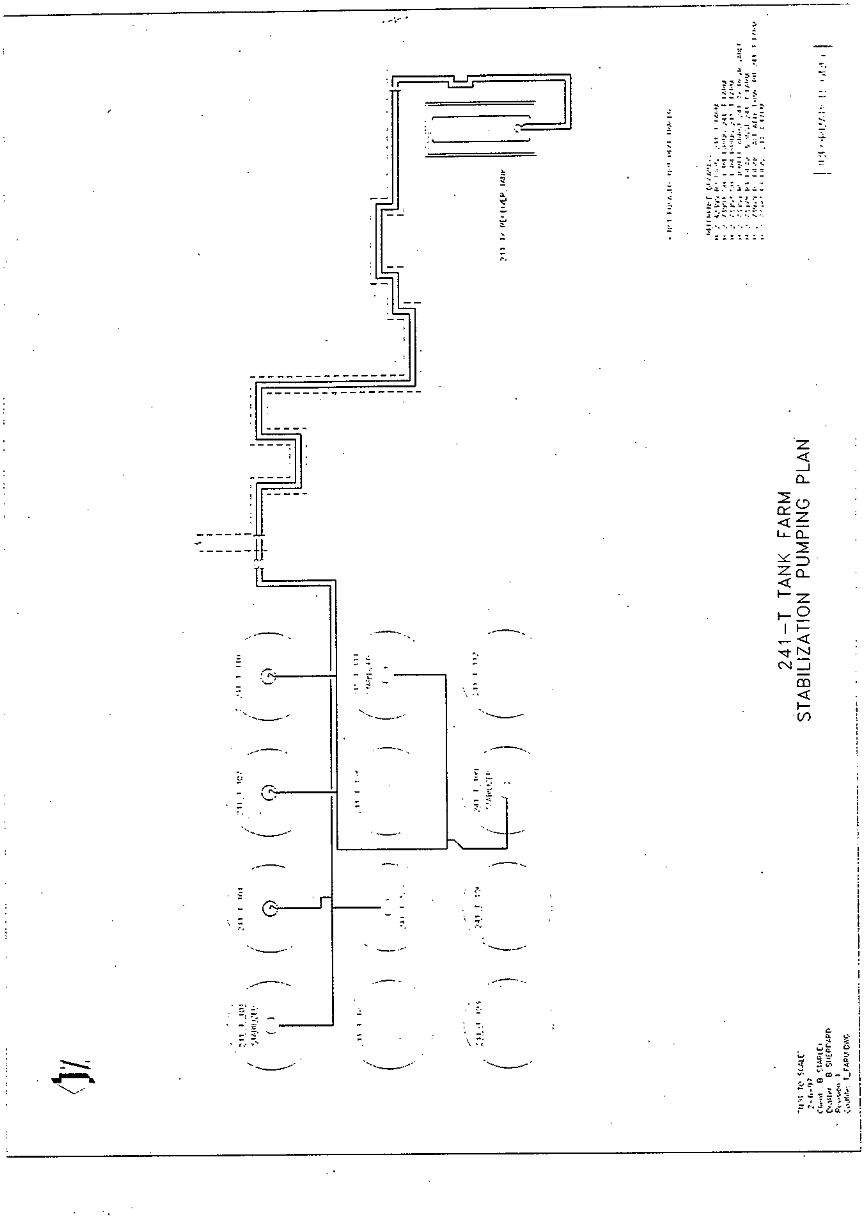


Figure 4-3d. T Farm Piping Configuration.

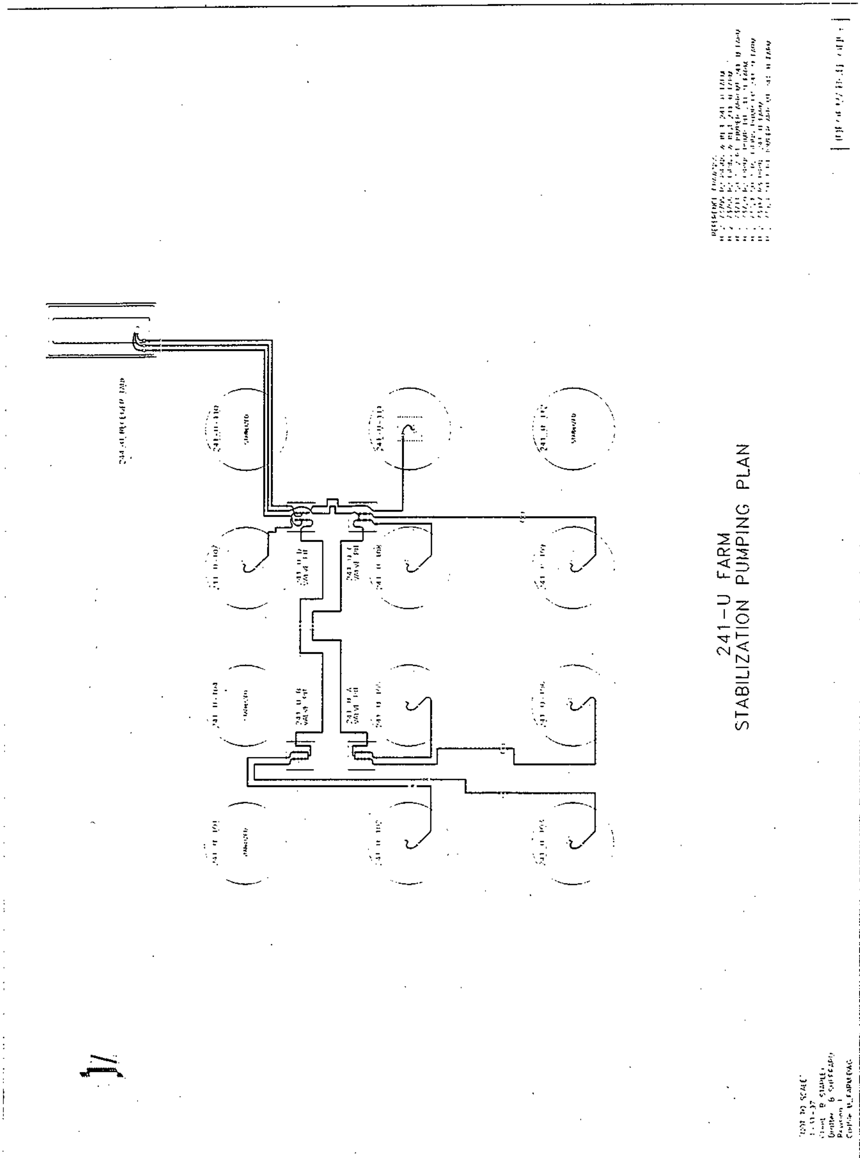


Figure 4-3e. U Farm Piping Configuration.

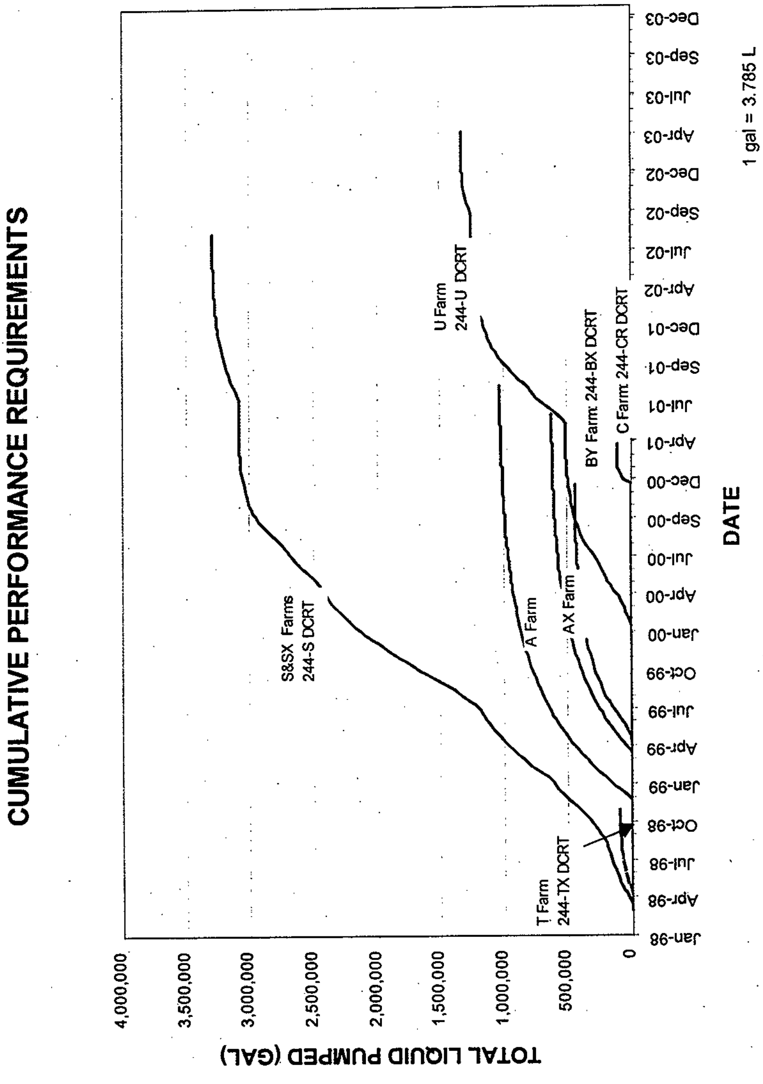


Figure 4-4. Double-Contained Receiver Tank and Tank Farm Subsystem Pumping Requirements.

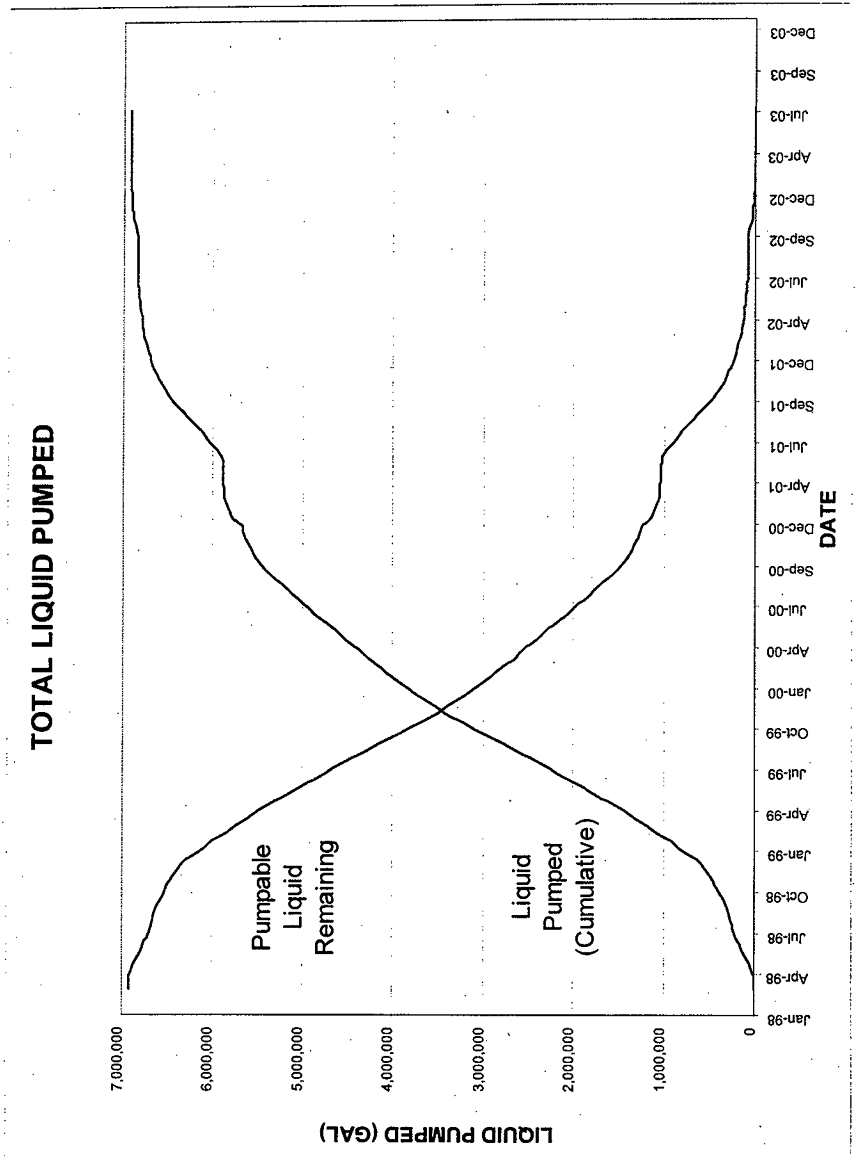


Figure 4-5. Cumulative Performance Requirements.

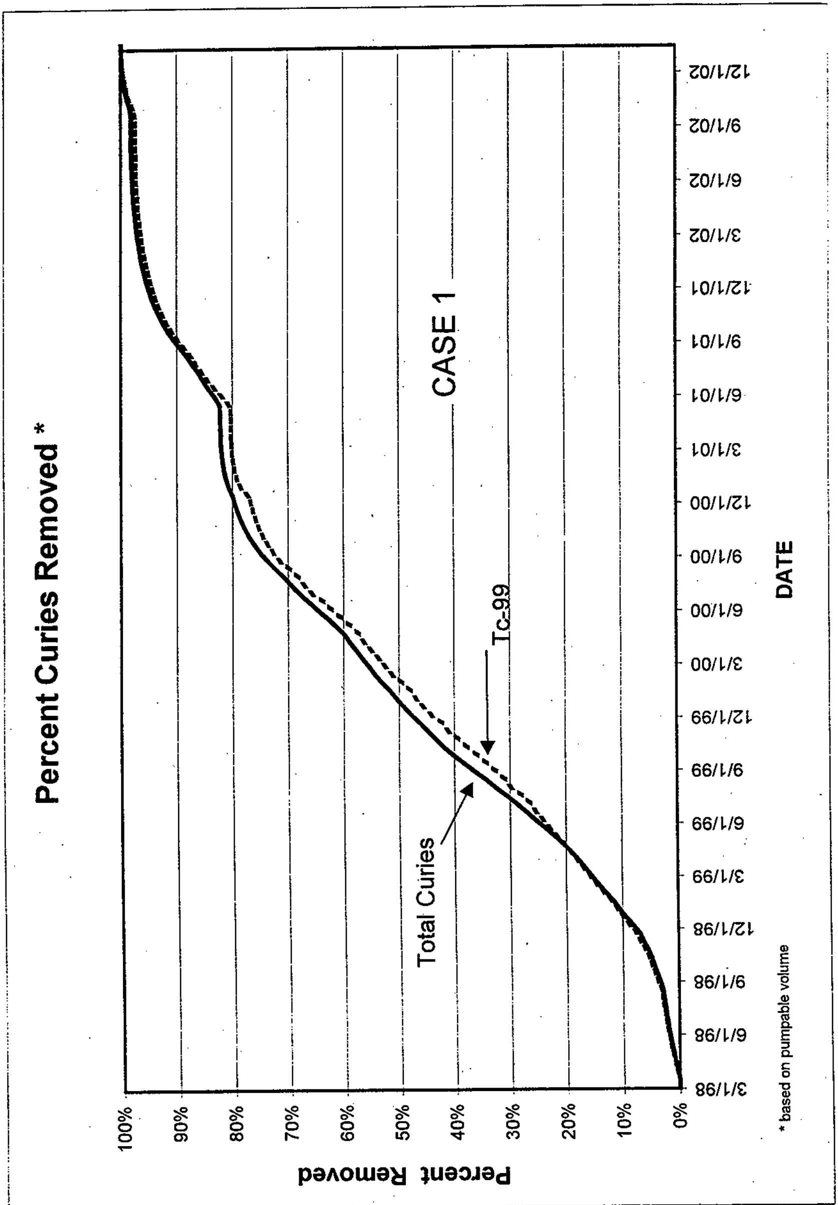


Figure 4-6. Removal of Radioactive Material

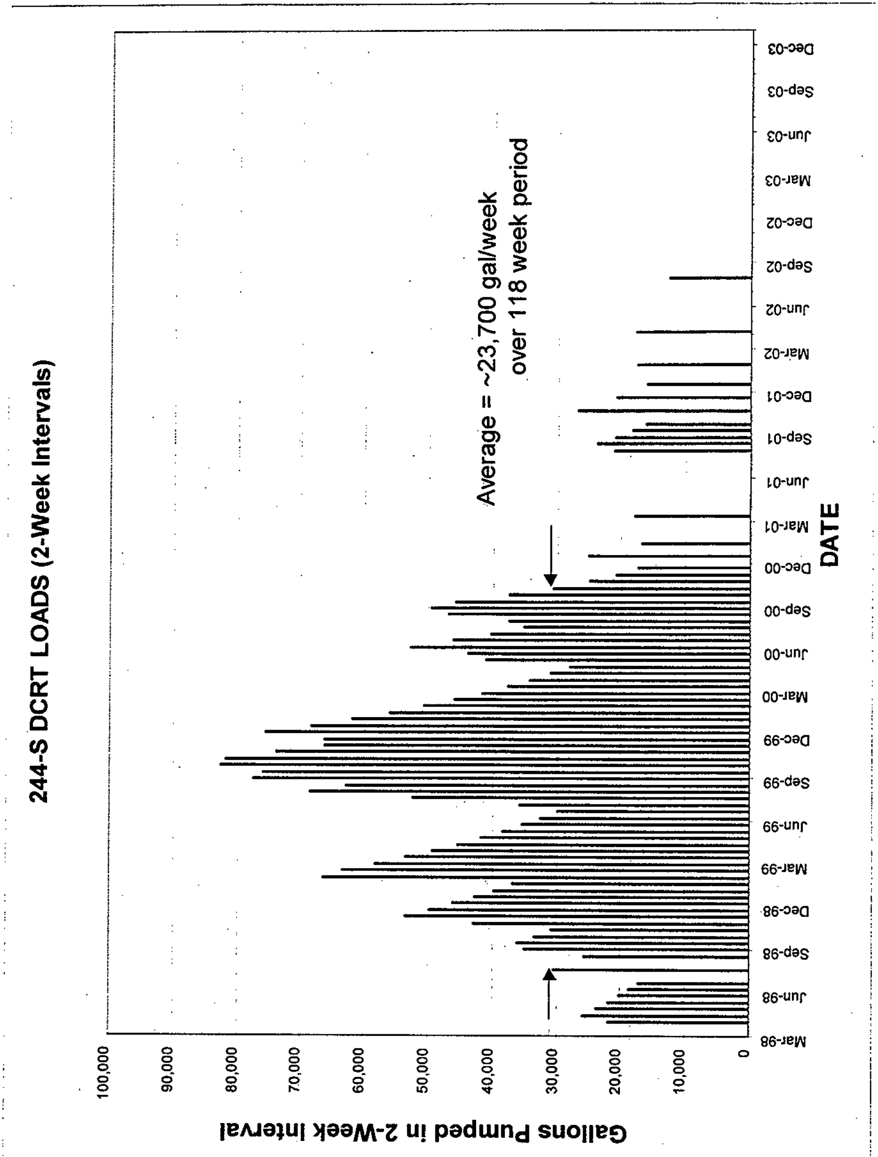


Figure 4-7. 244-S Double-Contained Receiver Tank Loads.

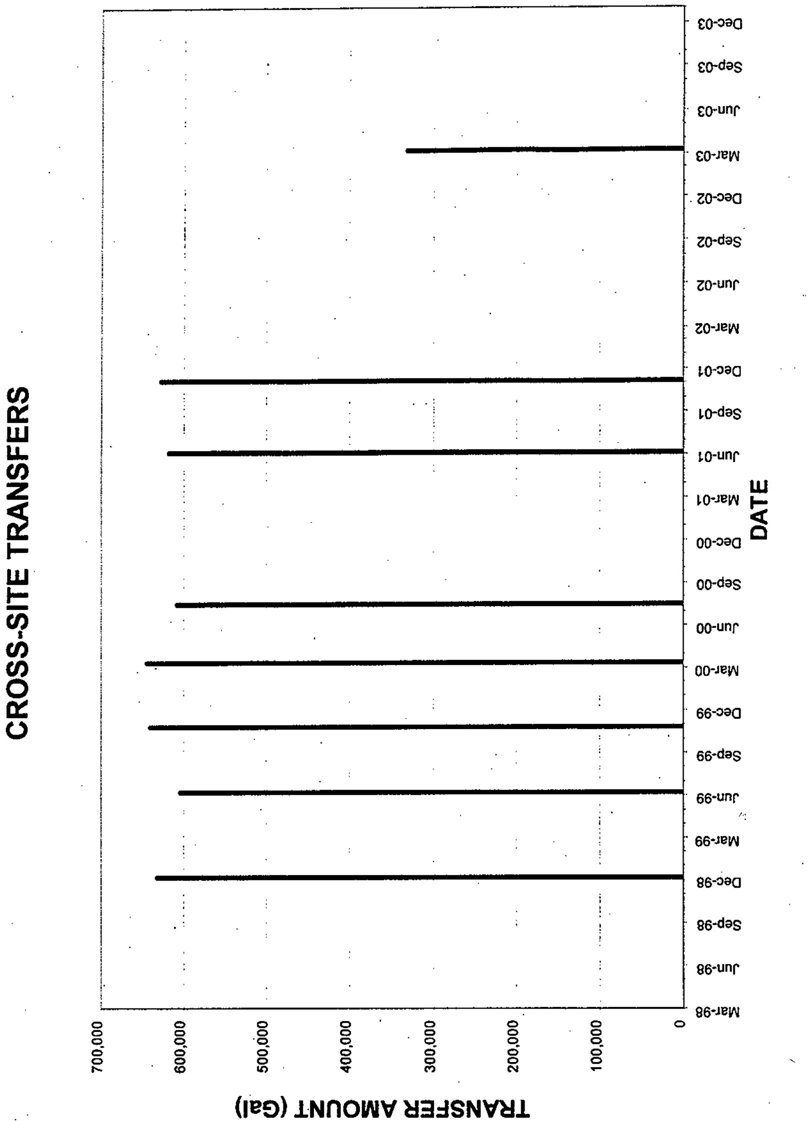


Figure 4-8. Cross-Site Transfers.

Table 4-2. Performance Requirements of Major Subsystems.

Equipment	Average Usage	Peak Usage	Nominal Rating*
244-S DCRT	23,700 gal/week over 118 week period	41,300 gal/week	16,000 gal/transfer
244-TX DCRT	6,700 gal/week over 12 week period	16,400 gal/week	24,000 gal/transfer
244-U DCRT	17,000 gal/week over 30 week period	31,000 gal/week	24,000 gal/transfer
244-BX	13,700 gal/week over 18 week period	17,700 gal/week	24,000 gal/transfer
244-CR	23,000 gal/week over 4 week period	13,100 gal/week	15,000 gal/transfer
Cross-Site Transfer Line	590,100 gal/ transfer, 8 transfers	650,000 gal transfer in 1 week	680,000 gal/transfer

DCRT = double contained receiver tank.
*1 gallon = 3.785 liters.

Table 4-3. Evaporator Campaign Schedule.

Campaign	Start Date	Staging Tank(s)	Source	Waste Feed Type	Feed Volume (1,000 gallons)
98	Cold Run				
99-1	3/99	Direct to AW-102	AY-102, AP-106, AP-108	DN	1000+
99-2	7/99	AP-107	SY-102 & AP-106	DN-SWL & DN	1000+
	8/99	Direct to AW-102	AW-104	DN	700
00-1	3/00	AP-104	SY-102 & AP-106	DN-SWL & DN	1000+
00-2	8/00	AP-107	SY-102 & AN-101	DN-SWL	1000+
01-1	12/00	AP-104	SY-102, AN-101, AP-106	DN-SWL & DN	1000+
	1/01	AP-107	SY-102, AP-106, AW-105	DN-SWL & DN	1000+
01-2	9/01	AN-101	SY-102 & AW-105	DN-SWL & DN	1000+
02-1	2/02	AP-107	AP-108	DC-SWL	980
02-2	7/02	AN-101	SY-102	DC-SWL	1000+

Table 4-2 presents the peak and average performance requirements for major subsystems. These performance requirements were estimated and compared to the normal capacity of the DCRTs and cross-site transfer system. This evaluation indicates that the 244-S DCRT is very near to, or exceeds, its normal capacity. Evaluations to address this risk are included in the project baseline. It may be possible to bypass some or all flow directly to Tank SY-102, resolving this issue directly.

To support liquid-volume reduction during the SST IS Project, the 242-A Evaporator will be scheduled to run two evaporator campaigns per year through the year 2002. Table 4-3 identifies the evaporator schedule.

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5.0 PROJECT STRATEGY

5.1 OPERATIONS AND MAINTENANCE STRATEGY

The ramp-up and the extent of the field activities necessary to execute this baseline mission are unprecedented. Substantial upgrades to the operations and maintenance strategy are required.

5.1.1 Operations Strategy

The SST IS Project operations strategy is based on the applicable requirements established in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. The applicability matrix for DOE Order 5480.19 is defined in HNF-IP-0842, Volume II, Section 4.1.1 (LMHC 1997a). The SST IS Project operations strategy consists of a dedicated 24-hour-per-day, seven-day-per-week shift operations for monitoring and control of SSTs that are actively pumping. Interim stabilization equipment preparations, tank isolation, and intrusion prevention activities will consist of a normal dedicated five-day-per-week (Monday through Friday) day-shift operation. The potential exists for a second-shift-per-day (swing shift) operation for tank preparation as conditions allow, to maintain SST pumping startups as planned.

In addition, the SST IS Project will achieve and maintain the capability to initiate pumping of a declared leaking SST within 30 days with the exception of Tanks C-103 and BY-105.

Standard operating practices and procedures will be performed in accordance with HNF-IP-0842 (LMHC 1997).

5.1.2 Maintenance Strategy

The duration of the IS period is directly affected by the total operating efficiency of the pumping system. This plan is based on an average of 60 percent availability of the saltwell pumping system. For tanks with long pumping durations, increased operating efficiency can result in dramatic improvements to the overall completion schedule.

A formal, dedicated maintenance effort will be established to execute this mission. This strategy is based on the requirements established in DOE Order 4330.4B, *Maintenance Management Program*, Chapter 2. The SST IS Project will implement an effective preventive and predictive maintenance program that balances early detection of conditions that will lead to equipment failure and actions that will ensure reliability over its design life with ALARA consideration of the maintenance personnel.

The SST IS maintenance strategy will continue to accept the run-to-failure philosophy of equipment in high-radiation and high-contamination areas. In other cases, reliability-centered maintenance and predictive maintenance techniques will be used consistent with DOE Order 4330.4B; WHC-SP-1179, *Maintenance Optimization for Essential Equipment Reliability* (Steffen 1996); Good Practice MA-307, *Preventive Maintenance*, (INPO 85-032); and Good Practice MA-316, *Plant Predictive Maintenance*, (INPO 89-009).

The strategy for SST IS Project maintenance will consist of the proper skill mix of crafts to support equipment installation; preventive, predictive, and corrective maintenance; and equipment removal. The Maintenance Organization will continue to work the day shift five days per week to accomplish the effort. However, if necessary, shift support will be implemented to support equipment operability to maintain pumping efficiencies for specific tank operations.

Maintenance practices and procedures will be performed in accordance with HNF-IP-0842 (LMHC 1997a).

5.2 NUCLEAR SAFETY AND LICENSING STRATEGY

The 30 SSTs yet to be interim stabilized (including Tank C-106) have been separated into two categories, FG2 and Facility Group 3 (FG3) per *Tank Waste Remediation System Basis for Interim Operation* (FDH 1997c). FG2 is made up of SSTs that are postulated to have the potential for a large *induced* gas release event but only a small *spontaneous* gas release event. The large gas release events postulated for FG2 SSTs are those *induced* by globally waste-disturbing operation FG3 SSTs are those postulated to have no *spontaneous* gas release events and to be subject only to small *induced* gas release events.

Currently the TWRS Authorization Basis allows the pumping of FG3 SSTs but not FG2 SSTs. On August 18, 1997, the Contractor submitted an Authorization Basis amendment package to FDH for transmittal to RL (Hall 1997) asking approval to pump FG2 SSTs. This amendment outlines the contractor's proposal for safely pumping the remaining FG2 SSTs. Although the SER has not been formally received from RL, drafts of the SER indicate that several additional requirements may be added over and above those submitted as part of the Authorization Basis amendment package for both FG2 and FG3 SSTs. Implementation of these anticipated requirements has been included in this plan's basis and scope.

The contractor will continue to provide technical information to RL through the FDH TWRS Project Direction Office to support the final issuance of the SER; the cost and schedule impacts of such requirements will be incorporated into the stabilization baseline as necessary.

5.3 ENVIRONMENTAL PERMITTING STRATEGY

Table 5-1 identifies relationships between the tanks to be pumped and their regulatory status. Additional safety guidance is expected from RL in the form of an SER.

Table 5-1. Single-Shell Tank Interim Stabilization Permitting Strategy.

Single-Shell Tanks to be Stabilized			
Tank	System Description	NOC Status	FY
SX-104	FG3 [1], on 241-SX active ventilation system	Short form complete	1998
A-101	FG2 [2], stand-by needed	Separate NOC complete	1998
BY-106	FG2, stand-by needed	NOC submitted (<0.1) [3]	1998
T-110	FG3, passively ventilated	No NOC required	1998
T-104	FG3, passively ventilated	No NOC required	1998
SX-106	FG2, on 241-SX active ventilation system	Separate NOC needed [4]	1999
SX-105	FG2, on 241-SX active ventilation system	Separate NOC needed	1999
SX-103	FG2, on 241-SX active ventilation system	Separate NOC needed	1999
SX-102	FG2, on 241-SX active ventilation system	Separate NOC needed	1999
S-102	FG2, stand-by needed	NOC submitted (<0.1)	1999
BY-105	FG2, concrete layer, stand-by needed	NOC submitted (<0.1)	1999
AX-101	FG3, passively ventilated	No NOC required (SER may impact)	1999
S-111	FG2, stand-by needed	NOC submitted (<0.1)	2000
S-109	FG2, stand-by needed	NOC submitted (<0.1)	2000
S-112	FG2, stand-by needed	Not in current NOC [5]	2000
S-106	FG2, stand-by needed	NOC submitted (<0.1)	2000
S-103	FG2, stand-by needed	Not in current NOC	2000
U-109	FG2, stand-by needed	NOC submitted (<0.1)	2000
S-101	FG2, stand-by needed	NOC submitted (<0.1)	2000
U-107	FG2, stand-by needed	NOC submitted (<0.1)	2000
U-111	FG2, stand-by needed	NOC submitted (<0.1)	2000
C-103	FG3, passively ventilated	Separate NOC required due to organics	2000
U-108	FG2, stand-by needed	NOC submitted (<0.1)	2000
S-107	FG2, stand-by needed	Not in current NOC	2001
SX-101	FG2, on 241-SX active ventilation system	Not in current NOC	2001
U-105	FG2, stand-by needed	NOC submitted (<0.1)	2001
U-103	FG2, stand-by needed	NOC submitted (<0.1)	2001
U-102	FG2, stand-by needed	Not in current NOC	2002
U-106	FG2, stand-by needed	Not in current NOC	2003

[1]FG3: Group 3 Ignition Controls.
[2]FG2: Group 2 Ignition Controls.
[3](<0.1): NOC under review that covers tanks with less than 1 x 10 sievert per year (0.1 millirem per year) potential to emit.
[4]A separate NOC will be written to reflect the use of the sludge cooler for SX-101, -102, -103, -105, and -106.
[5]These tanks will be evaluated to add to current NOC; a separate NOC may be developed.
FY = fiscal year.
NOC = notice of construction.
SER = safety evaluation report.

5.3.1 Assumptions

- All FG2 tanks will require active, standby ventilation to mitigate flammable gas concerns. These ventilation systems will be operated only at flammable gas concentrations of 25 percent or greater.

- FG3 tanks with passive filters only do not need a separate NOC.

- An NOC for Tank C-103 will be written at a later date because of the technological uncertainties associated with retrieving the separable organic layer.

- Tanks A-101 and SX-104 have separate NOCs currently approved.

- The SX Farm ventilation system (sludge cooler) will be used to satisfy the SER requirement for ventilation.

- The standby stacks will be designed and procured to meet compliance requirements to provide the maximum operational flexibility to TWRS activities.

5.3.2 Notices of Construction Strategy

- In addition to separate NOCs for Tanks A-101 and SX-104, another "generic" NOC is in the review cycle for minor stacks (potential to emit of less than 1×10^{-6} sievert per year (0.1 millirem per year). The NOC was reviewed by the Washington State Department of Health and the U.S. Environmental Protection Agency (EPA) is in the comment incorporation cycle. Environmental is evaluating additional tanks to be included in this NOC because the exhausters will not be run continuously. The SX saltwell tanks currently are included in this "generic" NOC; they will be deleted and a specific NOC will be initiated that uses the sludge cooler as the stipulated ventilation system if necessary.

- For those tanks or activities that may exceed the "minor" stack criteria, another NOC may have to be submitted for tanks with a potential to emit of greater than 1×10^{-6} sievert per year (0.1 millirem per year).

5.3.3 Schedule Impacts

- Of the tanks slated for pumping in FY 1998, the schedules for both AX-101 and BY-106 are in jeopardy. Requiring the use of an active ventilation system on these passively ventilated tanks will require an NOC.

- The SX tanks will require a new NOC using the sludge cooler; this NOC will be submitted to RL to support their submittal to the Washington State Department of Health and the EPA by June 30, 1998 to ensure that pumping can begin on schedule.

- Two tanks slated for pumping in FY 2000 are not currently covered by an NOC. Their source terms will be evaluated to be included in the current NOC. If it is not possible to include them, the NOC to cover a potential to emit of greater than

1 x 10^{-6} sievert per year (0.1 millirem per year) will need to be submitted to Washington State Department of Health and the EPA by the end of June, 1999. The C-103 NOC would have to be submitted in the same time frame.

- The additional tanks in the out years would be permitted using this same strategy.

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6.0 SINGLE-SHELL TANK INTERIM STABILIZATION PROJECT BASELINE

6.1 INTRODUCTION AND BASELINE PLANNING PROCESS

This section provides a summary of the baseline (scope, schedule, and cost) to complete the SST IS Project. This baseline was prepared in accordance with the RL letter to FDH (Sieracki 1998) and follow-on correspondence from FDH to LMHC (Hoogendoorn 1998) and LMHC to FDH (Wood 1998).

Three cases or scenarios are addressed in this section. Funding case number 1 (Maximum Ramp-Up) is based on funding not being a limiting factor. The only limitations considered for this case are physical and logistical constraints. This case is referred to as the base case. A detailed schedule and cost estimate was prepared for this base case. Funding cases number 2 and number 3 are presented in a summary manner and were developed in accordance with the above referenced guidance using the schedule and cost data from the base case.

The base case and summary cases number 2 and number 3 represent a more thorough analysis and development of the scope, schedule, and cost to complete SST IS than is contained in the current TWRS FY 1998 Multi-Year Work Plan (MYWP) (Lenseigne 1997) and supporting documentation. The data developed will serve as the basis for selection of a path forward case, Tri-Party Agreement (Ecology et al. 1996) change request, and revision to the project and TWRS baseline.

The systematic and controlled baseline planning process developed and implemented during the TWRS Retrieval and Disposal Mission Readiness-To-Proceed (RTP) Assessment was utilized to develop the base case for SST IS.

To conduct the SST IS planning process, senior-level multifunctional planning teams were formed with technically knowledgeable representatives from Operations; Characterization; SST IS; Nuclear Safety; Environmental Safety, Health, and Quality Assurance; Engineering/ Maintenance; the Management and Integration Contractor (FDH); Business Management (scheduling and cost estimating); and the Chief Financial Officer. Team leads were assigned to the planning effort commensurate with the type of work being addressed. Use of these multifunctional planning teams ensures that interfaces between performing organizations are identified for each activity and series of activities and that programs, projects, and operations work are integrated.

To define the scope of work, Level 1 logic diagrams were prepared to address all required activities to complete the SST IS Project. Scope driven by logic development ensures consistency with the technical requirements and mission and validates the need for the work. Initially, a generic logic diagram was developed that illustrates the typical activities (and the relationships) necessary to perform safe and compliant tank stabilization and isolation. This logic diagram includes reference activities, program-unique activities, and tank-unique activities.

Using this generic logic, as well as other technical and engineering data, tank-specific Level 1 logic diagrams were developed to fully define the scope of work for each of the 29 tanks in the project.

Following development of the tank-specific logic diagrams, the SST IS Project Work Breakdown Structure (WBS) was prepared as the framework for defining the remaining project workscope.

Using the project WBS and activities identified on the Level 1 logic diagrams, technical basis review narratives were prepared to fully define and document the technical basis, assumptions, risks, and interfaces for each activity. The technical basis review narratives include the following information:

- Header information for activity identification, title, responsible organization, responsible manager, technical content, and duration
- Technical basis
- Reference documents and reports
- Enabling assumptions
- Functional requirements and deliverables
- Connection with other activities/organizations
- Trade studies
- Decisions made/required
- Risk issues
- Plan to resolve risk/path forward
- Contacts
- Further action recommended
- Approval signatures.

With the scope and activity definition provided by the Level 1 logic diagrams and technical basis review narratives, the planning teams then broke down each of the activities and its logic to prepare the essential components for technical basis review packages. These components include the following:

- Technical basis review (Level 1 logic activity) control logs
- Technical basis review narratives
- Primavera Project Planner (P3)[1] generated subactivity (task) logic networks
- Subactivity (task) cost-estimating input sheets (CEIS)
- P3-generated resource-loading report.

This level of detail is necessary to adequately define and document the basis for the scope, schedule, and resource estimate at an executable task level. The subactivity (task) logic diagrams provide titles for the tasks, predecessor and successor activities, durations, and logic ties. The CEISs define the subactivity (task) scope, resources, basis of estimate, and assumptions.

The following data are documented on the CEISs:

- Header information including subactivity (task) title, reference technical basis review number, activity owner, preparer, date prepared, revision number, schedule activity identification number, financial data system work package/task package number, overall estimate of duration, WBS number, and earned value method.

- Subtask activity number

- Curve codes

- Subtask description

- P3 resource code

- Organization code

- Cost element

- Fund type

- Resource description

- Note reference

[1] Primavera is a trademark of Primavera Systems, Inc.

- Total amount (of resources)
- Units of resource
- Scope description
- Estimating assumptions/exclusions/risks
- Basis of estimate
- Estimate stage and method
- Reference documents
- Notes.

The CEISs were prepared by the planning teams with the assistance of professional schedulers and cost estimators using detailed desk instructions and guidelines. These completed estimates are activity based and represent a well-documented, traceable scope and basis for the estimate at the executable task level commensurate with the stage of the work and the level of scope definition available.

Using the Level 1 logic diagrams, data from the draft technical basis review packages, and other information, as required, a detailed integrated schedule was developed in P3. This base case schedule is task oriented, resource loaded, and logically driven and contains a critical path. This schedule is traceable to the logic diagrams, WBS, activity owners (performing organizations), and technical basis review data including the CEISs. This schedule was reviewed and revised to refine logic, durations, float, and critical path. Resources from the CEISs were loaded and priced in P3 to produce the base case cost and labor resource (FTE) summaries for work defined in the Level 1 logic diagrams. FY 1998 FDH-approved labor-rate tables were used in P3 for pricing.

The final technical basis review packages (Rev. 0) were prepared from the approved schedule, consisting of and supported by the technical basis review package control logs, technical basis review narratives, subactivity logic diagrams, P3 resource-loading reports, and CEISs. These packages were approved by both the activity owners and project management.

A very cost-effective and efficient approach was utilized for preparation of SST IS Project technical basis review data packages. Fully constituted technical basis review packages (control logs, technical basis review narratives, subactivity logic diagrams, CEISs, and P3 resource reports) were assembled for all activities (boxes) shown on the generic Level 1 logic diagram. These technical basis review packages became the "library" of data used to develop the 29 tank "data files" for activities on the 29 tank-specific logic diagrams. Individual technical basis review packages were not prepared for each activity on the 29 tank-specific logic diagrams.

Each of the 29 tank "data files" was assembled using a tank-specific logic matrix that identified the subactivity scope of work applicable to a tank activity from the reference and tank-unique "library" of technical basis review packages. This matrix was completed through a detailed review of each tank-specific logic activity to determine the tank-similar and -equivalent activities from the generic reference technical basis review packages. This approach provides for a reference back to the "library" of scope, schedule, and estimate data without unnecessary duplication of technical basis review package documentation. The tank-specific logic matrix is included in each tank "data file."

6.2 WORK BREAKDOWN STRUCTURE

Figure 6-1 depicts the TWRS WBS to Level 6, SST Maintenance and Operations (1.1.2.1.04). Figure 6-2 depicts the SST IS Project scope of work to WBS Level 7 (10 cost accounts) and Level 8. This WBS is based on the tank-specific logic diagrams and is used as the framework for scope definition, scheduling, estimating, budgeting, and managing the work. For this project plan, the WBS has been revised to identify (1) only the remaining scope of work (completed work is not shown), (2) numerous WBS Level 8 and below changes to facilitate incorporation of new or revised scope defined by the logic and technical basis review development planning, and (3) the addition of WBS # 1.1.2.1.04.72 to break out pumping operations for the 29 remaining SSTs.

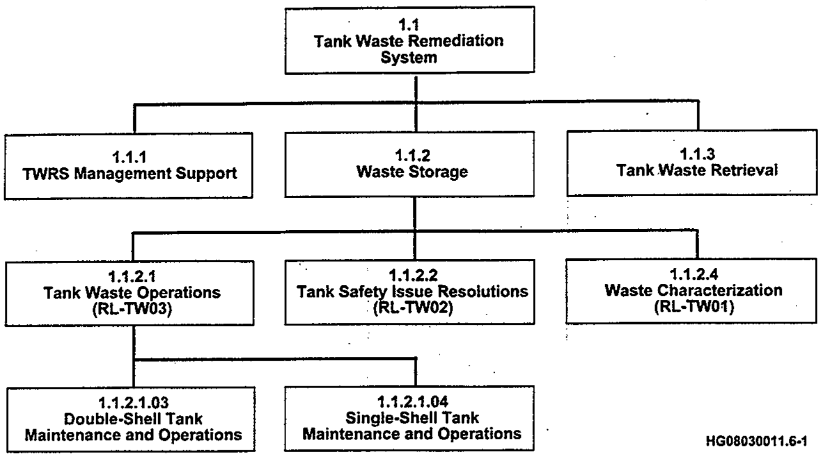
In Figures 6-1 and 6-2, the SST IS Project is identified as part of Tank Waste Operations (WBS 1.1.2.1). Near-term WBS changes are expected to reflect moving the project to Waste Characterization (WBS 1.1.2.4).

6.3 LEVEL 1 LOGIC

The Level 1 logic diagrams were developed to define the scope of work required to complete the SST IS Project. The logic diagrams are tools for translating the project mission requirements identified in Section 2.0 into a sequence of activities and logical interdependencies necessary to achieve the mission objectives. Using the process described in Section 6.1, a generic Level 1 logic diagram (Figure 6-3) was developed to cover the typical activities and their relationships. This figure includes reference activities, project-unique activities, and tank-unique activities.

Twenty-nine tank-specific Level 1 logic diagrams (Appendix E) were then developed to identify tank-specific activities including tank-unique activities, similar activities, and equivalent activities. The similar and equivalent activities are defined by their relationships to the reference activities on the Figure 6-3 logic diagram. These logic diagrams are traceable to the TWRS program (Level 0) logic that is used to identify the structure of activities necessary to achieve the entire integrated TWRS mission (life cycle). SST IS is represented on the program (Level 0) logic by Box #23, "Perform Saltwell Pumping and Intrusion Prevention," consistent with the activity coding on the Level 1 logic diagrams (23X.XXX).

Figure 6-1. Tank Waste Remediation System Work Breakdown Structure.



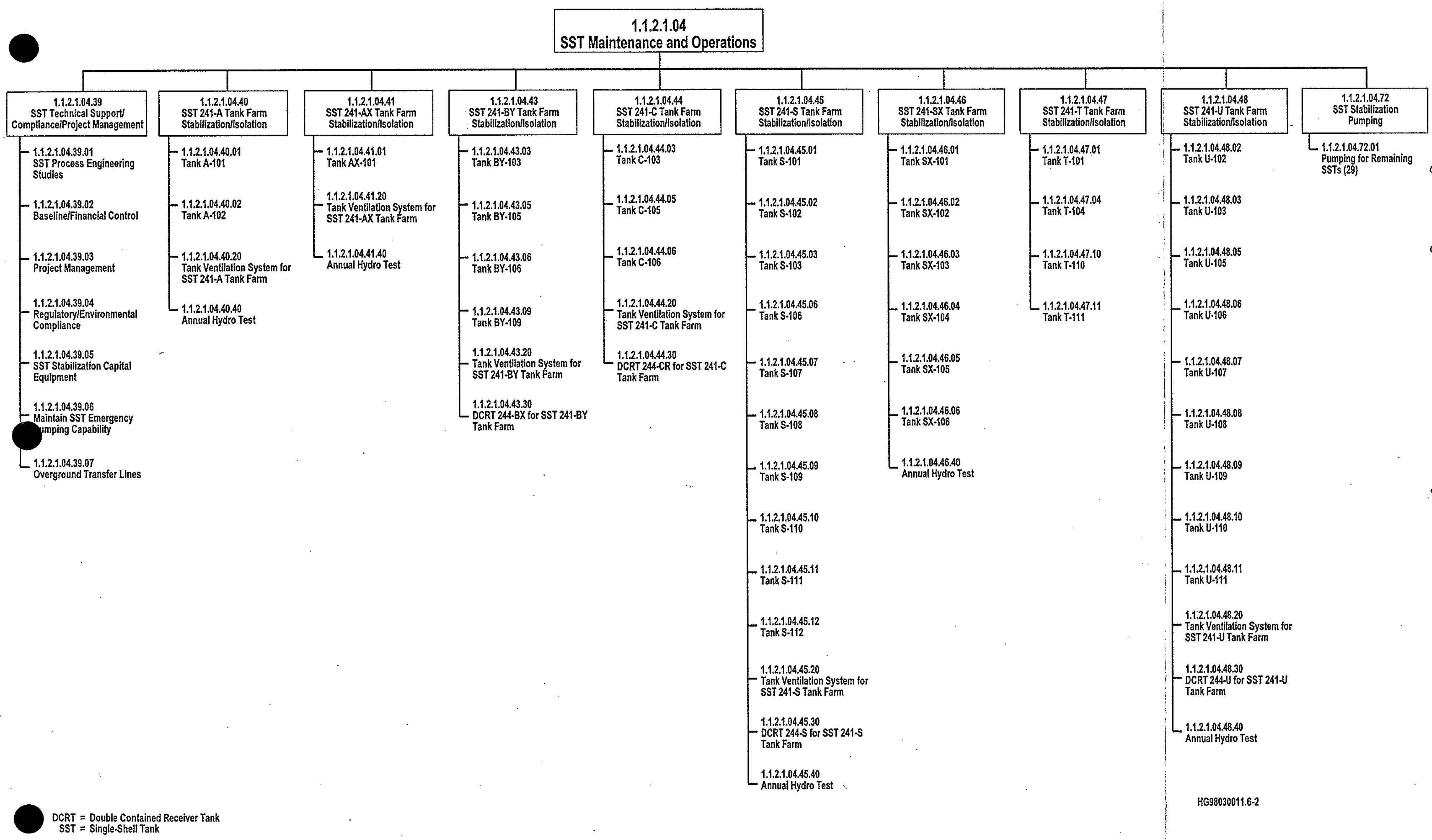
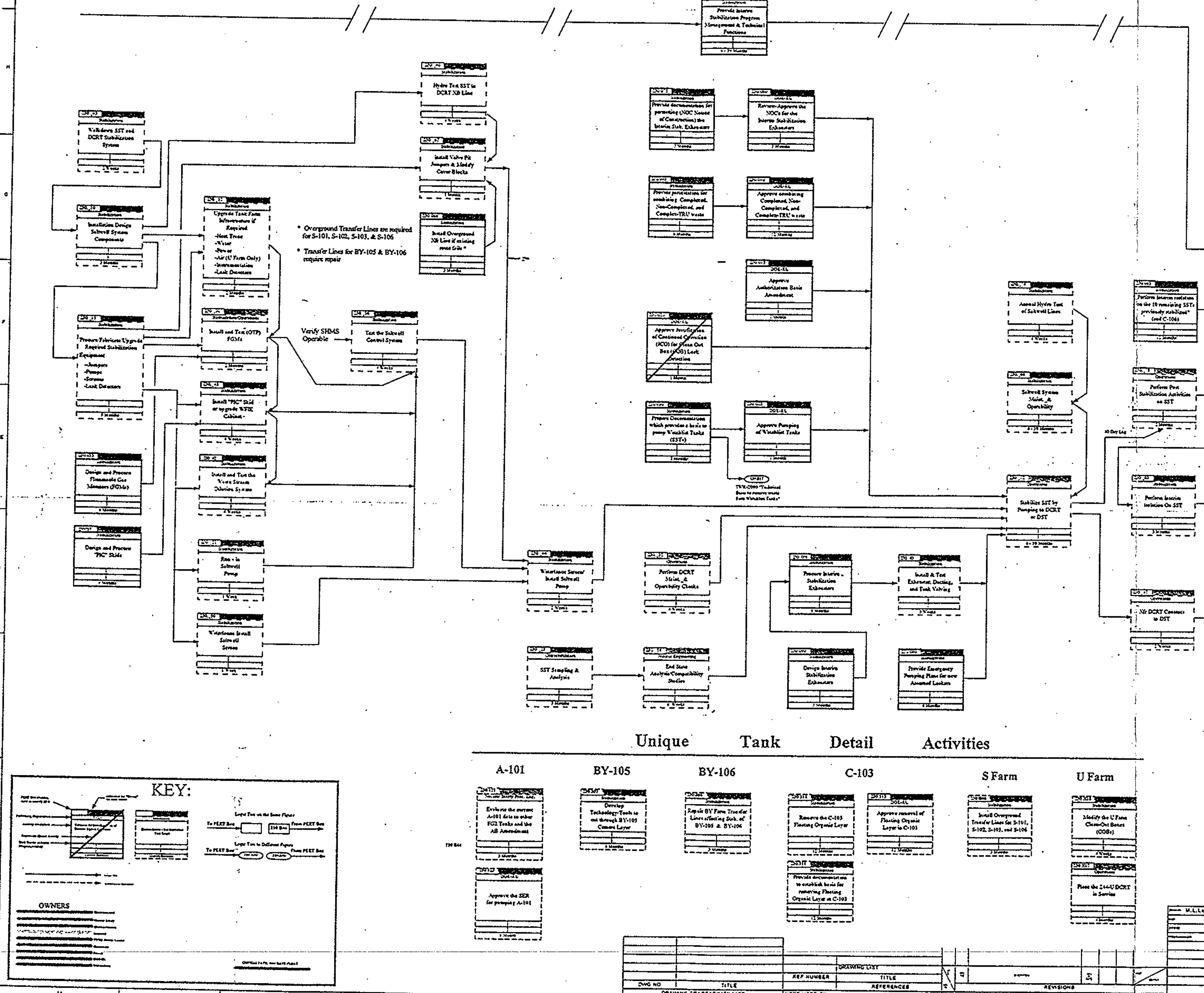


Figure 6-2. Single-Shell Tank Interim Stabilization Project Work Breakdown Structure.

Interim Stabilization Project Activities



NOTES:

1. This logic is a summary representation of the project schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed project schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. For Individual Detail See Specific Tank Logic Diagram. Pumping Order is indicated by Number in ( ).

A-101 (5)	S-109 (14)	T-110 (2)
AX-101 (6)	S-111 (15)	U-102 (28)
BY-105 (10)	S-112 (18)	U-103 (24)
BY-106 (4)	SX-101 (27)	U-105 (26)
C-103 (23)	SX-102 (11)	U-106 (29)
S-101 (19)	SX-103 (8)	U-107 (17)
S-102 (12)	SX-104 (3)	U-108 (16)
S-103 (21)	SX-105 (7)	U-109 (25)
S-106 (13)	SX-106 (9)	U-111 (20)
S-107 (22)	T-104 (1)	

The Level 1 logic diagrams were then used as the basis for preparing the technical basis review packages. These packages define and document the scope, schedule, and cost-estimate baseline data and are under configuration control. The Level 1 logic diagrams identify the primary activity owners including the owners responsible for SST IS Project Environmental, Nuclear Safety/Licensing, Characterization, Operations, and Projects and RL. The diagrams also depict the logic ties and completed activities. Breakdown of the Level 1 logic diagrams through the technical basis review planning process results in the logic-driven, resource-loaded, critical-path schedule (refer to Section 6-4).

The Level 1 logic diagrams and schedule are integrated with the WBS. Table 6-1 is a crosswalk of the Level 1 logic diagram activities to the WBS.

6.4 SCHEDULE

6.4.1 Case Number 1 - Base Case Schedule

Using the process described in Section 6.1, a detailed base case SST IS integrated detail schedule (Appendix D) was developed. Figure 6-4 identifies the completion dates from the schedule for stabilization/isolation of each tank and a revised date for the Tri-Party Agreement (Ecology et al. 1996) Milestone M-41-00. Figure 6-5, an integrated RL-WBS summary schedule, was generated from the Appendix D detailed schedule.

The base case detailed schedule is formatted to identify Level 1 logic activities within each WBS Level 8 element. The schedule was developed from, and is consistent with, the Level 1 logic diagrams and technical basis review package data developed to define the scope, schedule, and cost for the remainder of the SST IS Project, effective April 1, 1998. This schedule was prepared in P3, is task oriented, logically driven, and resource loaded, and contains a critical path. The schedule is traceable to the logic diagrams, technical basis review packages, WBS, and activity owners. Resources from the technical basis review package CEISs were loaded and priced in P3 to produce the base case cost and fulltime equivalent (FTE) summaries found in this section.

The base case schedule is responsive to the RL letter (Sieracki 1998), which states, "The first scenario (maximum ramp up scenario) is where funding is not a limiting factor. The only limitations in this case are due to physical or logistical constraints."

The base case schedule was developed to provide a plan to complete IS in the shortest time that is achievable. This is not, however, an unconstrained schedule. It is constrained by the availability of trained personnel, equipment, and other technical and regulatory issues.

- Personnel limits were based on the availability of personnel from the existing staff and the time required to train additional personnel in specific categories.

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
1010201043901	SST Process Engineering Studies	230.070	Provide Interim Stabil. Prog Mgt & Tech Funct's
1010201043902	Baseline/Financial Control	230.070	Provide Interim Stabil. Prog Mgt & Tech Funct's
1010201043903	Project Management	230.070	Provide Interim Stabil. Prog Mgt & Tech Funct's
1010201043904	Regulatory/Environmental Compliance	230.005	Justification Comb Compl, Non-Compl & TRU Waste
		230.010	Appr Comb Compl, Non-Compl, & Complex-TRU Waste
		230.015	Approve Authorization Basis Amendment
		230.025	Approve the Pmpg of WatchList SSTs
		230.030	Prepare AB Documents to Pump WatchList Tanks
		230.070	Provide Interim Stabil. Prog Mgt & Tech Funct's
		230.075	Prov Doc.Permitting (NOC) Interim Stab. Exhaust
		230.075	Prov Doc.Permitting (NOC) Interim Stab. Exhaust
		230.080	Review/Approve NOCs, Interim Stabil. Exhaust.s
1010201043905	SST Stabilization Capital Equipment	230.055	DOE-RL ORR for Pumping A-101
		230.057	Prov Controls/TSRs for Pumping per SAD-036 A-101
		230.090	Design the Interim Stabil. Exhausters
		230.095	Procure the Interim Stabil. Exhausters
1010201043906	Maintain SST Emergency Pumping Capability	230.060	Provide Emerg. Pmpg Plans New Assumed Leakrs
1010201043907	Overground Transfer Lines	230.066	Install Overgrnd XFR Line if Ex.Rte Fails Hydro
1010201044001	Stabilize and Isolate Tank A-101	230.110	Design A-101 Saltwell Sys Components
		230.115	Procure/Fab /Upgrd Req. Stabil. Equip. A-101
		230.121	Eval. A-101 Data,Other FG2 Tanks & AB Amendment
		230.123	Approve the SER for Pmpg A-101
		230.130	Install/Test the A-101 FGM
		230.140	Install/Test the Exhauster for A-101
		230.142	Install/Test Wste Stream Dilution Sys for A-101
		230.152	Upgrd A Tank Farm (for A-101) Infrastructure
		230.154	End State Analysis/Compat. Studies for A-101

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.156	Test (OTP) the Saltwell Control Sys for A-101
		230.162	Install Vlv Pit Jumprs/Modify Cvr Blocks A-101
		230.164	Wtrlance SW Screen / Install SW Pump A-101
		230.168	Saltwell Sys Maint. & Operability , A-101 Pmpg
		230.172	Stabilize A-101 by Pmpg to AP-108
		230.178	Perform Post Stabil. Activities on A-101
		230.180	Perform Interim Isolation on A-101
1010201044002	Stabilize and Isolate Tank A-102	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044020	Tank Ventilation Sys 241-A Tank Farm	230.140	Install/Test the Exhauster for A-101
1010201044040	241-A Tank Farm Annual Hydro	230.174	Perf Anul Hydro Test of SW Transf Lines A-101
1010201044101	Stabilize and Isolate Tank AX-101	230.180	Perform Interim Isolation on A-101
		230.210	Design AX-101 Saltwell Sys Components
		230.215	Procure/Fab /Upgrd Req. Stabil. Equip. AX-101
		230.225	Grab Sample & Analyze AX-101
		230.230	Install/Test the AX-101 FGM
		230.240	Install/Test the Exhauster for AX-101
		230.242	Install/Test Waste Stream Dilution Sys AX-101
		230.245	Install PIC Skid or Upgrd WFIE Cabinet AX-101
		230.254	End State Analysis/Compat. Studies for AX-101
		230.256	Test (OTP) the Saltwell Control Sys for AX-101
		230.262	Install Vlv Pit Jumpers and Modify CB AX-101
		230.264	Wtrlance SW Screen / Install SW Pump AX-101
		230.268	Saltwell Sys Maint. & Oprabilty , AX-101 Pmpg
		230.272	Stabilize AX-101 by Pmpg to AN-101
		230.278	Perform Post Stabil. Activities on AX-101
		230.280	Perform Interim Isolation on AX-101
1010201044120	Tank Ventilation Sys 241-AX Tank Farm	230.240	Install/Test the Exhauster for AX-101

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
1010201044140	241-AX Tank Farm Annual Hydro	230.274	Perf Annual Hydro Test SW Trans. Lines AX-101
		230.374	Perf Annual Hydro Test SW Transf Lines, BY Frm
1010201044303	Stabilize and Isolate Tank BY-103	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044305	Stabilize and Isolate Tank BY-105	230.305	Walkdown SST Farm and BY-105 System
		230.310	Design BY-105 Saltwell Sys Components
		230.315	Procure/Fab /Upgrd Req. Stabil. Equip. BY-105
		230.320	Run-In the Saltwell Pump for BY-105
		230.330	Install/Test the BY-105 FGM
		230.345	Install PIC Skid or Upgrd WFIE Cabinet BY-105
		230.350	Wtrlance/Install the Saltwell Screen for BY-105
		230.354	End State Analysis/Compat. Studies for BY-105
		230.356	Test (OTP) the Saltwell Control Sys for BY-105
		230.360	Hydro Test Saltwell Lines, BY-105 to 244-BX
		230.362	Install Vlv Pit Jumpers and Modify CB BY-105
		230.364	Wtrlance SW Screen / Install SW Pump BY-105
		230.368	Saltwell Sys Maint. & Oprabilty, BY-105 Pmpg
		230.372	Stabilize BY-105 by Pmpg to 244-BX
		230.378	Perform Post Stabil. Activities on BY-105
		230.380	Perform Interim Isolation on BY-105
1010201044306	Stabilize and Isolate Tank BY-106	230.410	Design BY-106 Saltwell Sys Components
		230.415	Procure/Fab /Upgrd Req. Stabil. Equip. BY-106
		230.420	Run-In the Saltwell Pump for BY-106
		230.430	Install/Test the BY-106 FGM
		230.440	Install/Test the Exhauster for BY-106
		230.445	Install PIC Skid or Upgrd WFIE Cabinet BY-106
		230.452	Upgrd BY Tank Farm Infrastructure as Required
		230.454	End State Analysis/Compat. Studies for BY-106
		230.456	Test (OTP) the Saltwell Control Sys for BY-106
		230.456	Test (OTP) the Saltwell Control Sys for BY-106

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.460	Hydro Test Saltwell Lines , BY-106 to 244-BX
		230.462	Install Vlv Pit Jumpers and Modify CB BY-106
		230.464	Wtrlance SW Screen / Install SW Pump BY-106
		230.466	Overgrnd XFR , BY-106 if Exst. Rte Fails Hydro
		230.468	Saltwell Sys Maint. & Oprabilty , BY-106 Pmpg
		230.472	Stabilize BY-106 by Pmpg to 244-BX
		230.478	Perform Post Stabil. Activities on BY-106
		230.480	Perform Interim Isolation on BY-106
1010201044309	Stabilize and Isolate Tank BY-109	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044320	Tank Ventilation Sys 241-BY Tank Farm	230.440	Install/Test the Exhauster for BY-106
1010201044330	DCRT 244-BX for SST 241-BY Tank Farm	230.432	Perf. DCRT Maint & Oprabilty Checks for 244-BX
1010201044403	Stabilize and Isolate Tank C-103	230.505	Walkdown SST Farm and C-103 System
		230.510	Design C-103 Saltwell Sys Components
		230.511	Document Basis Remvng Fling Org Layer in C-103
		230.513	Approve Removal of Floating Organic Layer C-103
		230.514	Remove the C-103 Floating Organic Layer
		230.515	Procure/Fab /Upgrd Req. Stabil. Equip. C-103
		230.520	Run-In the Saltwell Pump for C-103
		230.530	Install/Test the C-103 FGM
		230.540	Install/Test the Exhauster for C-103
		230.545	Install PIC Skid , Upgrd WFIE Cabinet C-103
		230.552	Upgrd C Tank Farm Infrastructure as Required
		230.554	End State Analysis/Compat. Studies for C-103
		230.556	Test (OTP) the Saltwell Control Sys for C-103
		230.560	Hydro Test Saltwell Lines from C-103 to CR-003
		230.562	Install Vlv Pit Jumprs/Modify Cvr Blocks C-103
		230.564	Wtrlance SW Screen / Install SW Pump C-103
		230.568	Saltwell Sys Maint. & Operability , C-103 Pmpg

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.572	Stabilize C-103 by Pmpg to CR-003
		230.578	Perform Post Stabil. Activities on C-103
		230.580	Perform Interim Isolation on C-103
1010201044405	Stabilize and Isolate Tank C-105	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044406	Stabilize and Isolate Tank C-106	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044420	Tank Ventilation Sys 241-C Tank Farm	230.540	Install/Test the Exhauster for C-103
1010201044501	Stabilize and Isolate Tank S-101	230.A05	Walkdown SST Farm and S-101 System
		230.A10	Design S-101 Saltwell Sys Components
		230.A15	Procure/Fab /Upgrd Req. Stabil. Equip. S-101
		230.A20	Run-In the Saltwell Pump for S-101
		230.A30	Install/Test the S-101 FGM
		230.A45	Install PIC Skid , Upgrd WFIE Cabinet S-101
		230.A50	Wtrlance/Install the Saltwell Screen for S-101
		230.A54	End State Analysis/Compat. Studies for S-101
		230.A56	Test (OTP) the Saltwell Control Sys for S-101
		230.A60	Hydro Test Saltwell Lines from S-101 to 244-S
		230.A62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-101
		230.A64	Wtrlance SW Screen / Install SW Pump S-101
		230.A68	Saltwell Sys Maint. & Operability , S-101 Pmpg
		230.A72	Stabilize S-101 by Pmpg to 244-S
		230.A78	Perform Post Stabil. Activities on S-101
		230.A80	Perform Interim Isolation on S-101
1010201044502	Stabilize and Isolate Tank S-102	230.B05	Walkdown SST Farm and S-102 System
		230.B10	Design S-102 Saltwell Sys Components
		230.B15	Procure/Fab /Upgrd Req. Stabil. Equip. S-102
		230.B20	Run-In the Saltwell Pump for S-102
		230.B30	Install/Test the S-102 FGM

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.B40	Install/Test the Exhauster for S-102
		230.B45	Install PIC Skid , Upgrd WFIE Cabinet S-102
		230.B50	Wtrlance/Install the Saltwell Screen for S-102
		230.B52	Upgrd S Tank Farm Infrastructure as Required
		230.B54	End State Analysis/Compat. Studies for S-102
		230.B56	Test (OTP) the Saltwell Control Sys for S-102
		230.B60	Hydro Test Saltwell Lines from S-102 to 244-S
		230.B62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-102
		230.B64	Wtrlance SW Screen / Install SW Pump S-102
		230.B66	Overgrnd XFR Line S-102 if Ex. Rte Fails Hydro
		230.B68	Saltwell Sys Maint. & Operability , S-102 Pmpg
		230.B72	Stabilize S-102 by Pmpg to 244-S
		230.B78	Perform Post Stabil. Activities on S-102
		230.B80	Perform Interim Isolation on S-102
1010201044503	Stabilize and Isolate Tank S-103	230.307	Develop Tech/Tools, Cut Thru BY-105 Cement Layr
		230.C05	Walkdown SST Farm and S-103 System
		230.C10	Design S-103 Saltwell Sys Components
		230.C15	Procure/Fab /Upgrd Req. Stabil. Equip. S-103
		230.C20	Run-In the Saltwell Pump for S-103
		230.C25	Grab Sample & Analyze S-103
		230.C30	Install/Test the S-103 FGM
		230.C32	Perform DCRT Maint & Oprabilty Check for 244-S
		230.C50	Wtrlance/Install the Saltwell Screen for S-103
		230.C54	End State Analysis/Compat. Studies for S-103
		230.C56	Test (OTP) the Saltwell Control Sys for S-103
		230.C60	Hydro Test Saltwell Lines from S-103 to 244-S
		230.C62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-103
		230.C64	Wtrlance SW Screen / Install SW Pump S-103
		230.C68	Saltwell Sys Maint. & Operability , S-103 Pmpg
		230.C72	Stabilize S-103 by Pmpg to 244-S
		230.C78	Stabilize and Isolate Tank S-103

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.C80	Perform Interim Isolation on S-103
1010201044506	Stabilize and Isolate Tank S-106	230.D05	Walkdown SST Farm and S-106 System
		230.D10	Design S-106 Saltwell Sys Components
		230.D15	Procure/Fab /Upgrd Req. Stabil. Equip. S-106
		230.D20	Run-In the Saltwell Pump for S-106
		230.D30	Install/Test the S-106 FGM
		230.D40	Install/Test the Exhauster for S-106
		230.D45	Install PIC Skid , Upgrd WFIE Cabinet S-106
		230.D50	Wtrlance/Install the Saltwell Screen for S-106
		230.D54	End State Analysis/Compat. Studies for S-106
		230.D56	Test (OTP) the Saltwell Control Sys for S-106
		230.D60	Hydro Test Saltwell Lines from S-106 to 244-S
		230.D62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-106
		230.D64	Wtrlance SW Screen / Install SW Pump S-106
		230.D68	Saltwell Sys Maint. & Operability , S-106 Pmpg
		230.D72	Stabilize S-106 by Pmpg to 244-S
		230.D78	Perform Post Stabil. Activities on S-106
		230.D80	Perform Interim Isolation on S-106
1010201044507	Stabilize and Isolate Tank S-107	230.E05	Walkdown SST Farm and S-107 System
		230.E10	Design S-107 Saltwell Sys Components
		230.E15	Procure/Fab /Upgrd Req. Stabil. Equip. S-107
		230.E20	Run-In the Saltwell Pump for S-107
		230.E30	Install/Test the S-107 FGM
		230.E32	Perform DCRT Maint & Oprabilty Check for 244-S
		230.E54	End State Analysis/Compat. Studies for S-107
		230.E56	Test (OTP) the Saltwell Control Sys for S-107
		230.E60	Hydro Test Saltwell Lines from S-107 to 244-S
		230.E62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-107
		230.E64	Wtrlance SW Screen / Install SW Pump S-107
		230.E68	Saltwell Sys Maint. & Operability , S-107 Pmpg

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.E72	Stabilize S-107 by Pmpg to 244-S
		230.E78	Perform Post Stabil. Activities on S-107
		230.E80	Perform Interim Isolation on S-107
1010201044508	Stabilize and Isolate Tank S-108	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044509	Stabilize and Isolate Tank S-109	230.F05	Walkdown SST Farm and S-109 System
		230.F10	Design S-109 Saltwell Sys Components
		230.F15	Procure/Fab /Upgrd Req. Stabil. Equip. S-109
		230.F20	Run-In the Saltwell Pump for S-109
		230.F30	Install/Test the S-109 FGM
		230.F40	Install/Test the Exhauster for S-109
		230.F45	Install PIC Skid , Upgrd WFIE Cabinet S-109
		230.F50	Wtrlance/Install the Saltwell Screen for S-109
		230.F54	End State Analysis/Compat. Studies for S-109
		230.F56	Test (OTP) the Saltwell Control Sys for S-109
		230.F60	Hydro Test Saltwell Lines from S-109 to 244-S
		230.F62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-109
		230.F64	Wtrlance SW Screen / Install SW Pump S-109
		230.F68	Saltwell Sys Maint. & Operability , S-109 Pmpg
		230.F72	Stabilize S-109 by Pmpg to 244-S
		230.F78	Perform Post Stabil. Activities on S-109
		230.F80	Perform Interim Isolation on S-109
		230.F80	Perform Interim Isolation on S-109
1010201044510	Stabilize and Isolate Tank S-110	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
		230.G05	Walkdown SST Farm and S-111 System
1010201044511	Stabilize and Isolate Tank S-111	230.G10	Design S-111 Saltwell Sys Components
		230.G15	Procure/Fab /Upgrd Req. Stabil. Equip. S-111
		230.G20	Run-In the Saltwell Pump for S-111
		230.G30	Install/Test the S-111 FGM

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.G40	Install/Test the Exhauster for S-111
		230.G45	Install PIC Skid , Upgrd WFIE Cabinet S-111
		230.G50	Wtrlance/Install the Saltwell Screen for S-111
		230.G54	End State Analysis/Compat. Studies for S-111
		230.G56	Test (OTP) the Saltwell Control Sys for S-111
		230.G60	Hydro Test Saltwell Lines from S-111 to 244-S
		230.G62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-111
		230.G64	Wtrlance SW Screen / Install SW Pump S-111
		230.G68	Saltwell Sys Maint. & Operability , S-111 Pmpg
		230.G72	Stabilize S-111 by Pmpg to 244-S
		230.G78	Perform Post Stabil. Activities on S-111
		230.G80	Perform Interim Isolation on S-111
1010201044512	Stabilize and Isolate Tank S-112	230.H05	Walkdown SST Farm and S-112 System
		230.H10	Design S-112 Saltwell Sys Components
		230.H15	Procure/Fab /Upgrd Req. Stabil. Equip. S-112
		230.H20	Run-In the Saltwell Pump for S-112
		230.H25	Grab Sample & Analyze S-112
		230.H30	Install/Test the S-112 FGM
		230.H45	Install PIC Skid , Upgrd WFIE Cabinet S-112
		230.H50	Wtrlance/Install the Saltwell Screen for S-112
		230.H54	End State Analysis/Compat. Studies for S-112
		230.H56	Test (OTP) the Saltwell Control Sys for S-112
		230.H60	Hydro Test Saltwell Lines from S-112 to 244-S
		230.H62	Install Vlv Pit Jumprs/Modify Cvr Blocks S-112
		230.H64	Wtrlance SW Screen / Install SW Pump S-112
		230.H68	Saltwell Sys Maint. & Operability , S-112 Pmpg
		230.H72	Stabilize S-112 by Pmpg to 244-S
		230.H78	Perform Post Stabil. Activities on S-112
		230.H80	Perform Interim Isolation on S-112
[illegible]01044520	Tank Ventilation Sys 241-S Tank Farm	230.B40	Install/Test the Exhauster for S-102

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.D40	Install/Test the Exhauster for S-106
		230.F40	Install/Test the Exhauster for S-109
		230.G40	Install/Test the Exhauster for S-111
1010201044530	DCRT 244-S for SST 241-S Tank Farm	230.G32	Perform DCRT Maint & Oprabilty Check for 244-S
		230.J32	Perform DCRT Maint & Oprabilty Check for 244-S
1010201044540	241-S Tank Farm Annual Hydro	230.B74	Perf Anul Hydro Test of SW Transf Lines S-102
1010201044601	Stabilize and Isolate Tank SX-101	230.J05	Walkdown SST Farm and SX-101 System
		230.J10	Design SX-101 Saltwell Sys Components
		230.J15	Procure/Fab /Upgrd Req. Stabil. Equip. SX-101
		230.J20	Run-In the Saltwell Pump for SX-101
		230.J25	Grab Sample & Analyze SX-101
		230.J30	Install/Test the SX-101 FGM
		230.J42	Install/Test Waste Stream Dilution Sys SX-101
		230.J45	Install PIC Skid or Upgrd WFIE Cabinet SX-101
		230.J50	Wtrlance/Install the Saltwell Screen for SX-101
		230.J54	End State Analysis/Compat. Studies for SX-101
		230.J54	End State Analysis/Compat. Studies for SX-101
		230.J56	Test (OTP) the Saltwell Control Sys for SX-101
		230.J60	Hydro Test Saltwell Lines from SX-101 to 244-S
		230.J62	Install Vlv Pit Jumpers and Modify CB SX-101
		230.J64	Wtrlance SW Screen / Install SW Pump SX-101
		230.J68	Saltwell Sys Maint. & Oprabilty , SX-101 Pmpg
		230.J72	Stabilize SX-101 by Pmpg to 244-S
		230.J78	Perform Post Stabil. Activities on SX-101
		230.J80	Perform Interim Isolation on SX-101
1010201044602	Stabilize and Isolate Tank SX-102	230.K05	Walkdown SST Farm and SX-102 System
		230.K10	Design SX-102 Saltwell Sys Components
		230.K15	Procure/Fab /Upgrd Req. Stabil. Equip. SX-102

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.K20	Run-In the Saltwell Pump for SX-102
		230.K25	Grab Sample & Analyze SX-102
		230.K30	Install/Test the SX-102 FGM
		230.K42	Install/Test Waste Stream Dilution Sys SX-102
		230.K45	Install PIC Skid or Upgrd WFIE Cabinet SX-102
		230.K50	Wtrlance/Install the Saltwell Screen for SX-102
		230.K54	End State Analysis/Compat. Studies for SX-102
		230.K56	Test (OTP) the Saltwell Control Sys for SX-102
		230.K60	Hydro Test Saltwell Lines from SX-102 to 244-S
		230.K62	Install Vlv Pit Jumpers and Modify CB SX-102
		230.K64	Wtrlance SW Screen / Install SW Pump SX-102
		230.K68	Saltwell Sys Maint. & Oprabilty , SX-102 Pmpg
		230.K72	Stabilize SX-102 by Pmpg to 244-S
		230.K78	Perform Post Stabil. Activities on SX-102
		230.K80	Perform Interim Isolation on SX-102
1010201044603	Stabilize and Isolate Tank SX-103	230.L05	Walkdown SST Farm and SX-103 System
		230.L10	Design SX-103 Saltwell Sys Components
		230.L15	Procure/Fab /Upgrd Req. Stabil. Equip. SX-103
		230.L20	Run-In the Saltwell Pump for SX-103
		230.L30	Install/Test the SX-103 FGM
		230.L42	Install/Test Waste Stream Dilution Sys SX-103
		230.L45	Install PIC Skid or Upgrd WFIE Cabinet SX-103
		230.L54	End State Analysis/Compat. Studies for SX-103
		230.L56	Test (OTP) the Saltwell Control Sys for SX-103
		230.L60	Hydro Test Saltwell Lines from SX-103 to 244-S
		230.L62	Install Vlv Pit Jumpers and Modify CB SX-103
		230.L64	Wtrlance SW Screen / Install SW Pump SX-103
		230.L68	Saltwell Sys Maint. & Oprabilty , SX-103 Pmpg
		230.L72	Stabilize SX-103 by Pmpg to 244-S
		230.L78	Perform Post Stabil. Activities on SX-103
		230.L80	Perform Interim Isolation on SX-103

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.M32	Perform DCRT Maint & Oprability Check for SX-103
1010201044604	Stabilize and Isolate Tank SX-104	230.M68	Saltwell Sys Maint. & Oprabilty , SX-104 Pmpg
		230.M72	Stabilize SX-104 by Pmpg to 244-S
		230.M78	Perform Post Stabil. Activities on SX-104
		230.M80	Review/Approve the NOC for SX-104 Exhaust.
1010201044605	Stabilize and Isolate Tank SX-105	230.N05	Walkdown SST Farm and SX-105 System
		230.N10	Design SX-105 Saltwell Sys Components
		230.N15	Procure/Fab /Upgrd Req. Stabil. Equip. SX-105
		230.N20	Run-In the Saltwell Pump for SX-105
		230.N25	Grab Sample & Analyze SX-105
		230.N30	Install/Test the SX-105 FGM
		230.N42	Install/Test Waste Stream Dilution Sys SX-105
		230.N45	Install PIC Skid or Upgrd WFIE Cabinet SX-105
		230.N50	Wtrlance/Install the Saltwell Screen for SX-105
		230.N52	Upgrd SX Tank Farm Infrastructure as Required
		230.N54	End State Analysis/Compat. Studies for SX-105
		230.N56	Test (OTP) the Saltwell Control Sys for SX-105
		230.N60	Hydro Test Saltwell Lines from SX-105 to 244-S
		230.N62	Install Vlv Pit Jumpers and Modify CB SX-105
		230.N64	Wtrlance SW Screen / Install SW Pump SX-105
		230.N68	Saltwell Sys Maint. & Oprabilty , SX-105 Pmpg
		230.N72	Stabilize SX-105 by Pmpg to 244-S
		230.N78	Perform Post Stabil. Activities on SX-105
		230.N80	Perform Interim Isolation on SX-105
1010201044606	Stabilize and Isolate Tank SX-106	230.P05	Walkdown SST Farm and SX-106 System
		230.P10	Design SX-106 Saltwell Sys Components
		230.P15	Procure/Fab /Upgrd Req. Stabil. Equip. SX-106
		230.P20	Run-In the Saltwell Pump for SX-106
		230.P25	Grab Sample & Analyze SX-106

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.P30	Install/Test the SX-106 FGM
		230.P42	Install/Test Waste Stream Dilution Sys SX-106
		230.P45	Install PIC Skid or Upgrd WFIE Cabinet SX-106
		230.P50	Wtrlance/Install the Saltwell Screen for SX-106
		230.P54	End State Analysis/Compat. Studies for SX-106
		230.P54	End State Analysis/Compat. Studies for SX-106
		230.P56	Test (OTP) the Saltwell Control Sys for SX-106
		230.P60	Hydro Test Saltwell Lines from SX-106 to 244-S
		230.P62	Install Vlv Pit Jumpers and Modify CB SX-106
		230.P64	Wtrlance SW Screen / Install SW Pump SX-106
		230.P68	Saltwell Sys Maint. & Oprabilty , SX-106 Pmpg
		230.P72	Stabilize SX-106 by Pmpg to 244-S
		230.P78	Perform Post Stabil. Activities on SX-106
		230.P80	Perform Interim Isolation on SX-106
		230.M74	Perf Annual Hydro Test SW Trans. Lines SX-104
1010201044701	Stabilize and Isolate Tank T-101	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044704	Stabilize and Isolate Tank T-104	230.Q68	Saltwell Sys Maint. & Operability , T-104 Pmpg
		230.Q72	Stabilize T-104 by Pmpg to 244-TX
		230.Q78	Perform Post Stabil. Activities on T-104
		230.Q80	Perform Interim Isolation on T-104
1010201044710	Stabilize and Isolate Tank T-110	230.R68	Saltwell Sys Maint. & Operability , T-110 Pmpg
		230.R72	Stabilize T-110 by Pmpg to 244-TX
		230.R78	Perform Post Stabil. Activities on T-110
		230.R80	Perform Interim Isolation on T-110
1010201044711	Stabilize and Isolate Tank T-111	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044730	DCRT 244-TX for SST 241-T Tank Farm		
[illegible]01044802	Stabilize and Isolate Tank U-102	230.S05	Walkdown SST Farm and U-102 System

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.S10	Design U-102 Saltwell Sys Components
		230.S15	Procure/Fab /Upgrd Req. Stabil. Equip. U-102
		230.101020	Run-In the Saltwell Pump for U-102
		230.S30	Install/Test the U-102 FGM
		230.S45	Install PIC Skid , Upgrd WFIE Cabinet U-102
		230.S50	Wtrlance/Install the Saltwell Screen for U-102
		230.S54	End State Analysis/Compat. Studies for U-102
		230.S56	Test (OTP) the Saltwell Control Sys for U-102
		230.S60	Hydro Test Saltwell Lines from U-102 to 244-U
		230.S62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-102
		230.S64	Wtrlance SW Screen / Install SW Pump U-102
		230.S68	Saltwell Sys Maint. & Operability , U-102 Pmpg
		230.S72	Stabilize U-102 by Pmpg to 244-U
		230.S78	Perform Post Stabil. Activities on U-102
		230.S80	Perform Interim Isolation on U-102
1010201044803	Stabilize and Isolate Tank U-103	230.T05	Walkdown SST Farm and U-103 System
		230.T10	Design U-103 Saltwell Sys Components
		230.T15	Procure/Fab /Upgrd Req. Stabil. Equip. U-103
		230.T20	Run-In the Saltwell Pump for U-103
		230.T30	Install/Test the U-103 FGM
		230.T40	Install/Test the Exhauster for U-103
		230.T45	Install PIC Skid , Upgrd WFIE Cabinet U-103
		230.T50	Wtrlance/Install the Saltwell Screen for U-103
		230.T54	End State Analysis/Compat. Studies for U-103
		230.T56	Test (OTP) the Saltwell Control Sys for U-103
		230.T60	Hydro Test Saltwell Lines from U-103 to 244-U
		230.T62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-103
		230.T64	Wtrlance SW Screen / Install SW Pump U-103
		230.T68	Saltwell Sys Maint. & Operability , U-103 Pmpg
		230.T72	Stabilize U-103 by Pmpg to 244-U
		230.T78	Perform Post Stabil. Activities on U-103

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.T80	Perform Interim Isolation on U-103
1010201044805	Stabilize and Isolate Tank U-105	230.U05	Walkdown SST Farm and U-105 System
		230.U10	Design U-105 Saltwell Sys Components
		230.U15	Procure/Fab /Upgrd Req. Stabil. Equip. U-105
		230.U20	Run-In the Saltwell Pump for U-105
		230.U30	Install/Test the U-105 FGM
		230.U45	Install PIC Skid , Upgrd WFIE Cabinet U-105
		230.U50	Wtrlance/Install the Saltwell Screen for U-105
		230.U54	End State Analysis/Compat. Studies for U-105
		230.U56	Test (OTP) the Saltwell Control Sys for U-105
		230.U60	Hydro Test Saltwell Lines from U-105 to 244-U
		230.U62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-105
		230.U64	Wtrlance SW Screen / Install SW Pump U-105
		230.U68	Saltwell Sys Maint. & Operability , U-105 Pmpg
		230.U72	Stabilize U-105 by Pmpg to 244-U
		230.U78	Perform Post Stabil. Activities on U-105
		230.U80	Perform Interim Isolation on U-105
1010201044806	Stabilize and Isolate Tank U-106	230.V05	Walkdown SST Farm and U-106 System
		230.V10	Design U-106 Saltwell Sys Components
		230.V15	Procure/Fab /Upgrd Req. Stabil. Equip. U-106
		230.V20	Run-In the Saltwell Pump for U-106
		230.V30	Install/Test the U-106 FGM
		230.V45	Install PIC Skid , Upgrd WFIE Cabinet U-106
		230.V50	Wtrlance/Install the Saltwell Screen for U-106
		230.V54	End State Analysis/Compat. Studies for U-106
		230.V56	Test (OTP) the Saltwell Control Sys for U-106
		230.V60	Hydro Test Saltwell Lines from U-106 to 244-U
		230.V62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-106
		230.V64	Wtrlance SW Screen / Install SW Pump U-106
		230.V68	Saltwell Sys Maint. & Operability , U-106 Pmpg

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.V72	Stabilize U-106 by Pmpg to 244-U
		230.V78	Perform Post Stabil. Activities on U-106
		230.V80	Perform Interim Isolation on U-106
1010201044807	Stabilize and Isolate Tank U-107	230.W05	Walkdown SST Farm and U-107 System
		230.W10	Design U-107 Saltwell Sys Components
		230.W15	Procure/Fab /Upgrd Req. Stabil. Equip. U-107
		230.W20	Run-In the Saltwell Pump for U-107
		230.W30	Install/Test the U-107 FGM
		230.W45	Install PIC Skid , Upgrd WFIE Cabinet U-107
		230.W50	Wtrlance/Install the Saltwell Screen for U-107
		230.W54	End State Analysis/Compat. Studies for U-107
		230.W56	Test (OTP) the Saltwell Control Sys for U-107
		230.W60	Hydro Test Saltwell Lines from U-107 to 244-U
		230.W62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-107
		230.W64	Wtrlance SW Screen / Install SW Pump U-107
		230.W68	Saltwell Sys Maint. & Operability , U-107 Pmpg
		230.W72	Stabilize U-107 by Pmpg to 244-U
		230.W78	Perform Post Stabil. Activities on U-107
		230.W80	Perform Interim Isolation on U-107
1010201044808	Stabilize and Isolate Tank U-108	230.X05	Walkdown SST Farm and U-108 System
		230.X10	Design U-108 Saltwell Sys Components
		230.X15	Procure/Fab /Upgrd Req. Stabil. Equip. U-108
		230.X18	Modify the U Farm Clean-Out Boxes (COBs)
		230.X20	Run-In the Saltwell Pump for U-108
		230.X30	Install/Test the U-108 FGM
		230.X40	Install/Test the Exhauster for U-108
		230.X45	Install PIC Skid , Upgrd WFIE Cabinet U-108
		230.X50	Wtrlance/Install the Saltwell Screen for U-108
		230.X52	Upgrd U Tank Farm Infrastructure as Required
		230.X54	End State Analysis/Compat. Studies for U-108

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.X56	Test (OTP) the Saltwell Control Sys for U-108
		230.X60	Hydro Test Saltwell Lines from U-108 to 244-U
		230.X62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-108
		230.X64	Wtrlance SW Screen / Install SW Pump U-108
		230.X68	Saltwell Sys Maint. & Operability , U-108 Pmpg
		230.X68	Saltwell Sys Maint. & Operability , U-108 Pmpg
		230.X72	Stabilize U-108 by Pmpg to 244-U
		230.X78	Perform Post Stabil. Activities on U-108
		230.X80	Perform Interim Isolation on U-108
1010201044809	Stabilize and Isolate Tank U-109	230.Y05	Walkdown SST Farm and U-109 System
		230.Y10	Design U-109 Saltwell Sys Components
		230.Y15	Procure/Fab /Upgrd Req. Stabil. Equip. U-109
		230.Y20	Run-In the Saltwell Pump for U-109
		230.Y30	Install/Test the U-109 FGM
		230.Y40	Install/Test the Exhauster for U-109
		230.Y45	Install PIC Skid , Upgrd WFIE Cabinet U-109
		230.Y50	Wtrlance/Install the Saltwell Screen for U-109
		230.Y54	End State Analysis/Compat. Studies for U-109
		230.Y56	Test (OTP) the Saltwell Control Sys for U-109
		230.Y60	Hydro Test Saltwell Lines from U-109 to 244-U
		230.Y62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-109
		230.Y64	Wtrlance SW Screen / Install SW Pump U-109
		230.Y68	Saltwell Sys Maint. & Operability , U-109 Pmpg
		230.Y72	Stabilize U-109 by Pmpg to 244-U
		230.Y78	Perform Post Stabil. Activities on U-109
		230.Y80	Perform Interim Isolation on U-109
1010201044810	Stabilize and Isolate Tank U-110	230.085	Perm Isolation on 11 Remaining SST Prev & C-106
1010201044811	Stabilize and Isolate Tank U-111	230.Z05	Walkdown SST Farm and U-111 System
		230.Z10	Design U-111 Saltwell Sys Components

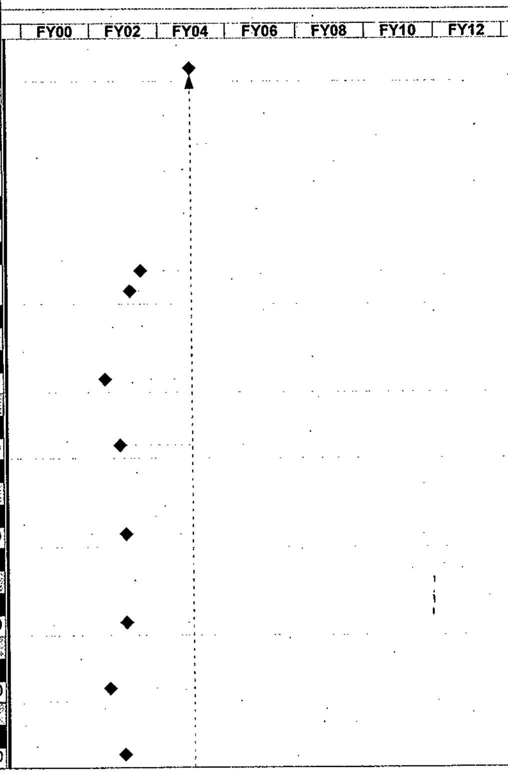
Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.Z15	Procure/Fab /Upgrd Req. Stabil. Equip. U-111
		230.Z20	Run-In the Saltwell Pump for U-111
		230.Z25	Grab Sample & Analyze U-111
		230.Z30	Install/Test the U-111 FGM
		230.Z45	Install PIC Skid , Upgrd WFIE Cabinet U-111
		230.Z50	Wtrlance/Install the Saltwell Screen for U-111
		230.Z54	End State Analysis/Compat. Studies for U-111
		230.Z56	Test (OTP) the Saltwell Control Sys for U-111
		230.Z60	Hydro Test Saltwell Lines from U-111 to 244-U
		230.Z62	Install Vlv Pit Jumprs/Modify Cvr Blocks U-111
		230.Z64	Wtrlance SW Screen / Install SW Pump U-111
		230.Z68	Saltwell Sys Maint. & Operability , U-111 Pmpg
		230.Z72	Stabilize U-111 by Pmpg to 244-U
		230.Z78	Perform Post Stabil. Activities on U-111
		230.Z80	Perform Interim Isolation on U-111
1010201044820	Tank Ventilation Sys 241-U Tank Farm	230.T40	Install/Test the Exhauster for U-103
		230.X40	Install/Test the Exhauster for U-108
		230.Y40	Install/Test the Exhauster for U-109
1010201044830	DCRT 244-U for SST 241-U Tank Farm	230.T32	Perform DCRT Maint & Oprabilty Check for 244-U
		230.V32	Perform DCRT Maint & Oprabilty Check for 244-U
		230.X17	Place the 244-U DCRT in Service
		230.X32	Perform DCRT Maint & Oprabilty Check for 244-U
1010201044840	241-U Tank Farm Annual Hydro	230.X74	Perf Anul Hydro Test of SW Transf Lines U-108
1010201047201	Pumping for Remaining SST's (29)	230.172	Pumping for Group 1
		230.K72	Pumping for Group 2
		230.B72	Pumping for Group 3
		230.W72	Pumping for Group 4
		230.H72	Pumping for Group 5

Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/Work Breakdown Structure Crosswalk.

WBS	WBS Title	Logic #	Logic Title
		230.572	Pumping for Group 6
		230.M72	Pumping for Group 7

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
SSTMS01	M-41-00 COMPL SST INTERIM	0		05SEP03	0
1					
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.41 SST 241-AX Tank Farm Stabilization/Isolation					
1.01.02.01.04.41.01 Stabilize and Isolate Tank AX-101					
1.01.02.01.04.41.01.04 Isolation & Intrusion Prevention Tank AX-101					
231MS	Tank A-101 Tank Stabilization/Isolation Compl	0		04MAR02	0
232MS	Tank AX-101 Tank Stabilization/Isolation Compl	0		19NOV01	0
1.01.02.01.04.43 SST 241-BY Tank Farm Stabilization/Isolation					
1.01.02.01.04.43.05 Stabilize and Isolate Tank BY-105					
1.01.02.01.04.43.05.04 Isolation & Intrusion Prevention Tank BY-105					
233MS	Tank BY-105 Tank Stabilization/Isolation Compl	0		23FEB01	0
1.01.02.01.04.43.06 Stabilize and Isolate Tank BY-106					
1.01.02.01.04.43.06.04 Isolation & Intrusion Prevention Tank BY-106					
234MS	Tank BY-106 Tank Stabilization/Isolation Compl	0		19JUL01	0
1.01.02.01.04.44 SST 241-C Tank Farm Stabilization/Isolation					
1.01.02.01.04.44.03 Stabilize and Isolate Tank C-103					
1.01.02.01.04.44.03.04 Isolation & Intrusion Prevention Tank C-103					
235MS	Tank C-103 Tank Stabilization/Isolation CompL	0		18SEP01	0
1.01.02.01.04.45 SST 241-S Tank Farm Stabilization/Isolation					
1.01.02.01.04.45.01 Stabilize and Isolate Tank S-101					
1.01.02.01.04.45.01.04 Isolation & Intrusion Prevention Tank S-101					
23AMS	Tank S-101 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.02 Stabilize and Isolate Tank S-102					
1.01.02.01.04.45.02.04 Isolation & Intrusion Prevention Tank S-102					
23BMS	Tank S-102 Stabilization/Isolation Complete	0		14MAR01	0
1.01.02.01.04.45.03 Stabilize and Isolate Tank S-103					
1.01.02.01.04.45.03.04 Isolation & Intrusion Prevention Tank S-103					
23CMS	Tank S-103 Tank Stabilization/Isolation Compl	0		28AUG01	0



Project Start	01OCT97
Project Finish	01OCT03
Data Date	01APR98
Run Date	27MAR98

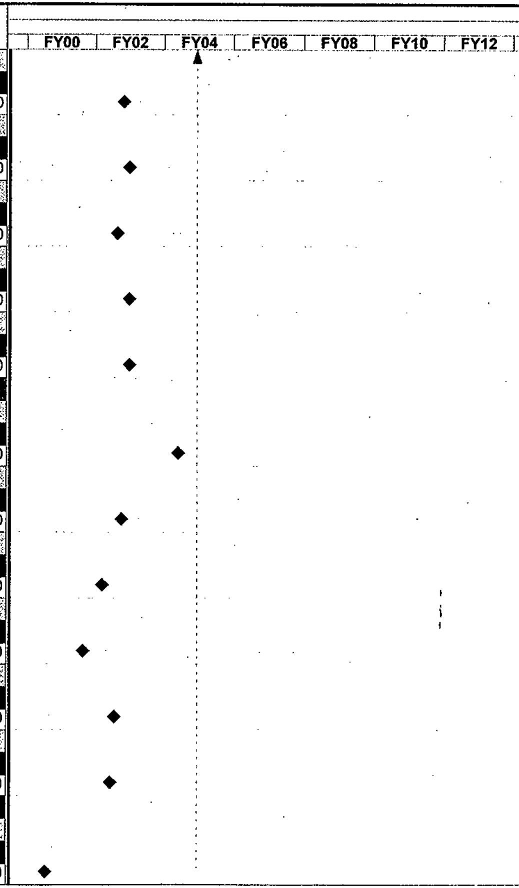
Early Bar
Progress Bar
Critical Activity

SSTI

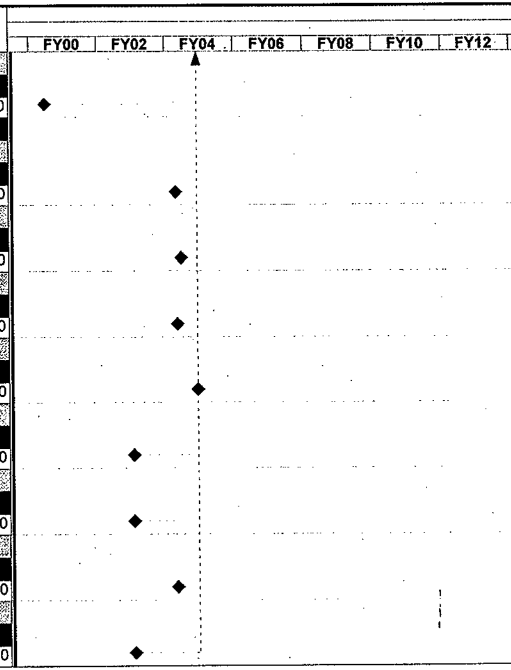
Sheet 1 of 3

Figure 6-4, Single-Shell Tank
Interim Stabilization Integrated
Milestone Summary Schedule, Case 1

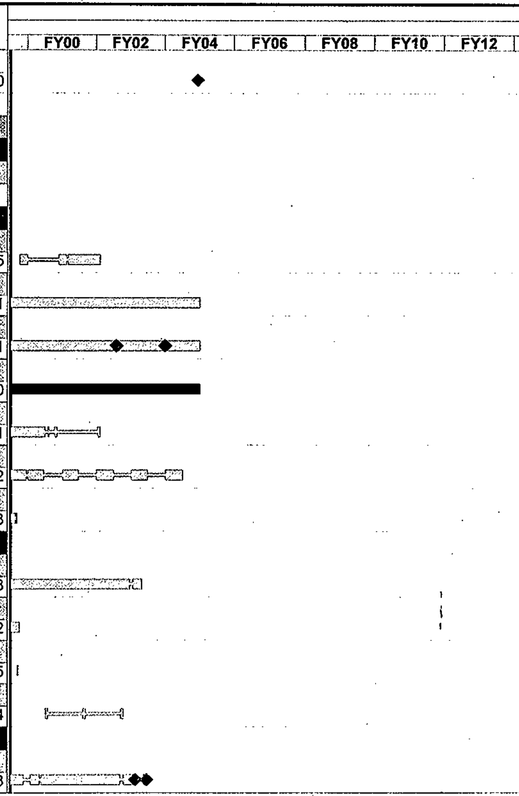
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.45.06 Stabilize and Isolate Tank S-106					
1.01.02.01.04.45.06.04 Isolation & Intrusion Prevention Tank S-106					
23DMS	Tank S-106 Tank Stabilization/Isolation Compl	0		24JUL01	0
1.01.02.01.04.45.07 Stabilize and Isolate Tank S-107					
1.01.02.01.04.45.07.04 Isolation & Intrusion Prevention Tank S-107					
23EMS	Tank S-107 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.09 Stabilize and Isolate Tank S-109					
1.01.02.01.04.45.09.04 Isolation & Intrusion Prevention Tank S-109					
23FMS	Tank S-109 Tank Stabilization/Isolation Compl	0		21MAY01	0
1.01.02.01.04.45.11 Stabilize and Isolate Tank S-111					
1.01.02.01.04.45.11.04 Isolation & Intrusion Prevention Tank S-111					
23GMS	Tank S-111 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.12 Stabilize and Isolate Tank S-112					
1.01.02.01.04.45.12.04 Isolation & Intrusion Prevention Tank S-112					
23HMS	Tank S-112 Tank Stabilization/Isolation Compl	0		26SEP01	0
1.01.02.01.04.46 SST 241-SX Tank Farm Stabilization/Isolation					
1.01.02.01.04.46.01 Stabilize and Isolate Tank SX-101					
1.01.02.01.04.46.01.04 Isolation & Intrusion Prevention Tank SX-101					
23JMS	Tank SX-101 Tank Stabilization/Isolation Compl	0		21FEB03	0
1.01.02.01.04.46.02 Stabilize and Isolate Tank SX-102					
1.01.02.01.04.46.02.04 Isolation & Intrusion Prevention Tank SX-102					
23KMS	Tank SX-102 Tank Stabilization/Isolation Compl	0		03JUL01	0
1.01.02.01.04.46.03 Stabilize and Isolate Tank SX-103					
1.01.02.01.04.46.03.04 Isolation & Intrusion Prevention Tank SX-103					
23LMS	Tank SX-103 Tank Stabilization/Isolation Compl	0		06DEC00	0
1.01.02.01.04.46.04 Stabilize and Isolate Tank SX-104					
1.01.02.01.04.46.04.04 Isolation & Intrusion Prevention Tank SX-104					
23MMS	Tank SX-104 Tank Stabilization/Isolation Compl	0		18MAY00	0
1.01.02.01.04.46.05 Stabilize and Isolate Tank SX-105					
1.01.02.01.04.46.05.04 Isolation & Intrusion Prevention Tank SX-105					
23NMS	Tank SX-105 Tank Stabilization/Isolation Compl	0		18APR01	0
1.01.02.01.04.46.06 Stabilize and Isolate Tank SX-106					
1.01.02.01.04.46.06.04 Isolation & Intrusion Prevention Tank SX-106					
23PMS	Tank SX-106 Tank Stabilization/Isolation Compl	0		02MAR01	0
1.01.02.01.04.47 SST 241-T Tank Farm Stabilization/Isolation					
1.01.02.01.04.47.04 Stabilize and Isolate Tank T-104					
1.01.02.01.04.47.04.04 Isolation & Intrusion Prevention Tank T-104					
23QMS	Tank T-104 Tank Stabilization/Isolation Compl	0		20APR99	0



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.47.10 Stabilize and Isolate Tank T-110					
1.01.02.01.04.47.10.04 Isolation & Intrusion Prevention Tank T-110					
23RMS	Tank T-110 Tank Stabilization/Isolation Compl	0		22MAR99	0
1.01.02.01.04.48 SST 241-U Tank Farm Stabilization/Isolation					
1.01.02.01.04.48.02 Stabilize and Isolate Tank U-102					
1.01.02.01.04.48.02.04 Isolation & Intrusion Prevention Tank U-102					
23SMS	Tank U-102 Tank Stabilization/Isolation Compl	0		24JAN03	0
1.01.02.01.04.48.03 Stabilize and Isolate Tank U-103					
1.01.02.01.04.48.03.04 Isolation & Intrusion Prevention Tank U-103					
23TMS	Tank U-103 Tank Stabilization/Isolation Compl	0		20MAR03	0
1.01.02.01.04.48.05 Stabilize and Isolate Tank U-105					
1.01.02.01.04.48.05.04 Isolation & Intrusion Prevention Tank U-105					
23UMS	Tank U-105 Tank Stabilization/Isolation Compl	0		04FEB03	0
1.01.02.01.04.48.06 Stabilize and Isolate Tank U-106					
1.01.02.01.04.48.06.04 Isolation & Intrusion Prevention Tank U-106					
23VMS	Tank U-106 Tank Stabilization/Isolation Compl	0		05SEP03	0
1.01.02.01.04.48.07 Stabilize and Isolate Tank U-107					
1.01.02.01.04.48.07.04 Isolation & Intrusion Prevention Tank U-107					
23WMS	Tank U-107 Tank Stabilization/Isolation Compl	0		18OCT01	0
1.01.02.01.04.48.08 Stabilize and Isolate Tank U-108					
1.01.02.01.04.48.08.04 Isolation & Intrusion Prevention Tank U-108					
23XMS	Tank U-108 Tank Stabilization/Isolation Compl	0		18OCT01	0
1.01.02.01.04.48.09 Stabilize and Isolate Tank U-109					
1.01.02.01.04.48.09.04 Isolation & Intrusion Prevention Tank U-109					
23YMS	Tank U-109 Tank Stabilization/Isolation Compl	0		24JAN03	0
1.01.02.01.04.48.11 Stabilize and Isolate Tank U-111					
1.01.02.01.04.48.11.04 Isolation & Intrusion Prevention Tank U-111					
23ZMS	Tank U-111 Tank Stabilization/Isolation Compl	0		18OCT01	0



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
SSTMS01	M-41-00 COMPL SST INTERIM	0		05SEP03	0
1					
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.39 SST Project Mgt/Tech Support/Compliance					
+ 1.01.02.01.04.39.01 SST Process Engineering Studies					
		593	01JUL98	08NOV00	725
+ 1.01.02.01.04.39.02 Baseline/Financial Control					
		1,381	01APR98	30SEP03	1
+ 1.01.02.01.04.39.03 Project Management					
		1,381	01APR98	30SEP03	1
+ 1.01.02.01.04.39.04 Regulatory/Environmental Compliance					
		1,382	01APR98	01OCT03	0
+ 1.01.02.01.04.39.05 SST Stabilization Capital Equipment					
		661	01APR98	14NOV00	721
+ 1.01.02.01.04.39.06 Maintain Emergency Pumping Capability					
		1,250	01APR98	25MAR03	132
+ 1.01.02.01.04.39.07 Overground Transfer Lines					
		49	01APR98	09JUN98	1,333
1.01.02.01.04.40 SST 241-A Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.40.01 Stabilize and Isolate Tank A-101					
		964	01APR98	01FEB02	418
+ 1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102					
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.40.20 Tank Ventilation Sys 241-A Tank Farm					
		6	11JUN98	18JUN98	85
+ 1.01.02.01.04.40.40 241-A Tank Farm Annual Hydro					
		577	01APR99	17JUL01	554
1.01.02.01.04.41 SST 241-AX Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.41.01 Stabilize and Isolate Tank AX-101					
		984	01APR98	04MAR02	398



Project Start	01OCT97
Project Finish	01OCT03
Data Date	01APR98
Run Date	27MAR98

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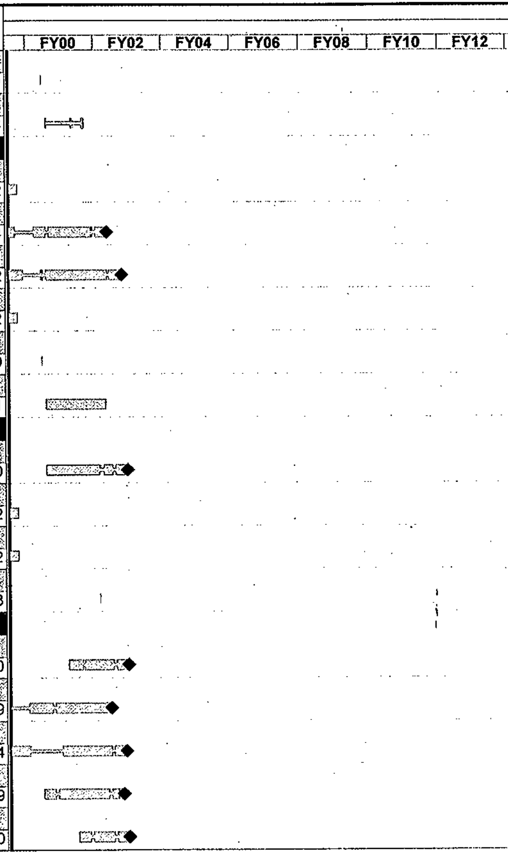
Early Bar
Progress Bar
Critical Activity

SSTr

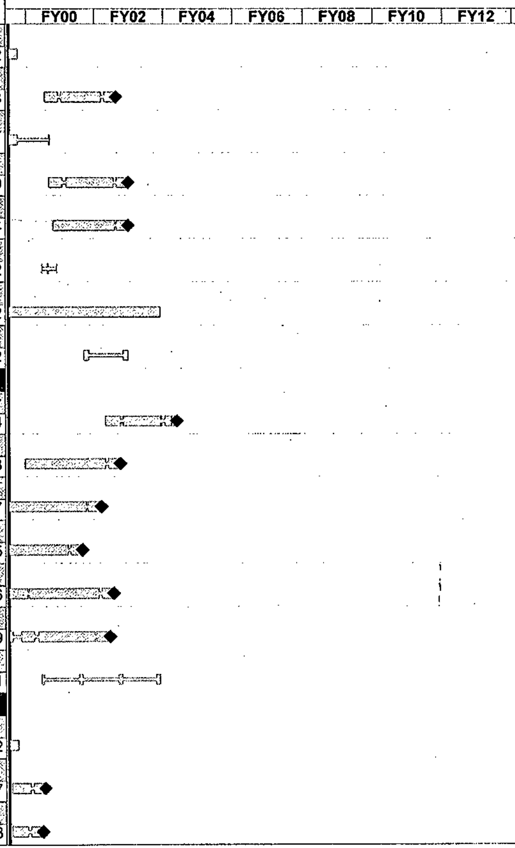
Sheet 1 of 4

Figure 6-5, Single-Shell Tank
Interim Stabilization Integrated
RL WBS Summary Schedule, Case 1

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm				
		6	17MAR99	24MAR99	0
+ 1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro				
		281	03MAY99	13JUN00	828
1.01.02.01.04.43	SST 241-BY Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105				
		728	01APR98	23FEB01	654
+ 1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106				
		830	01APR98	19JUL01	552
+ 1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.43.20	Tank Ventilation Sys SST 241-BX Tank Farm				
		6	17MAR99	24MAR99	19
+ 1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm				
		438	03MAY99	30JAN01	671
1.01.02.01.04.44	SST 241-C Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103				
		599	03MAY99	18SEP01	510
+ 1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.44.20	Tank Ventilation Sys SST 241-C Tank Farm				
		6	22NOV00	01DEC00	13
1.01.02.01.04.45	SST 241-S Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101				
		442	16DEC99	18SEP01	510
+ 1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102				
		753	01APR98	30MAR01	629
+ 1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103				
		858	01APR98	28AUG01	524
+ 1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106				
		591	19MAR99	24JUL01	549
+ 1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107				
		375	24MAR00	18SEP01	510



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109				
		525	20APR99	21MAY01	593
+ 1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110				
		301	01APR98	10JUN99	1,081
+ 1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111				
		576	04JUN99	18SEP01	510
+ 1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112				
		554	16JUL99	26SEP01	504
+ 1.01.02.01.04.45.20	Tank Ventilation Sys SST 241-S Tank Farm				
		116	17MAR99	30AUG99	182
+ 1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm				
		1,110	01APR98	30AUG02	272
+ 1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro				
		317	13JUN00	14SEP01	512
1.01.02.01.04.46	SST 241-SX Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101				
		520	26JAN01	21FEB03	154
+ 1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102				
		703	16SEP98	03JUL01	563
+ 1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103				
		675	01APR98	06DEC00	707
+ 1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104				
		537	01APR98	18MAY00	845
+ 1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105				
		766	01APR98	18APR01	616
+ 1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106				
		733	01APR98	02MAR01	649
+ 1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro				
		873	01MAR99	19AUG02	281
1.01.02.01.04.47	SST 241-T Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104				
		243	01MAY98	20APR99	1,117
+ 1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110				
		222	01MAY98	22MAR99	1,138



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.47.11	Stabilize and Isolate Tank T-111				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm				
		127*	01MAY98	30OCT98	0
1.01.02.01.04.48	SST 241-U Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102				
		470	13MAR01	24JAN03	173
+ 1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103				
		907	09AUG99	20MAR03	135
+ 1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105				
		517	15JAN01	04FEB03	166
+ 1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106				
		328	16MAY02	05SEP03	18
+ 1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107				
		515	04OCT99	18OCT01	488
+ 1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108				
		616	10MAY99	18OCT01	488
+ 1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109				
		538	01DEC00	24JAN03	173
+ 1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110				
		70	01APR98	10JUL98	1,312
+ 1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111				
		553	10AUG99	18OCT01	488
+ 1.01.02.01.04.48.20	Tank Ventilation Sys SST 241-U Tank Farm				
		282	16NOV99	03JAN01	440
+ 1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm				
		964	11MAY99	14MAR03	139
+ 1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro				
		607	05SEP00	05FEB03	165
1.01.02.01.04.72	SST Stabilization Pumping				
+ 1.01.02.01.04.72.01	Pumping for Remaining SST's (29)				
		,243*	01APR98	14MAR03	0

FY00 FY02 FY04 FY06 FY08 FY10 FY12

- The SST IS Project does not currently possess all pieces of major equipment such as exhausters, pump instrumentation and control skids, and flammable gas monitors that will be required to complete the mission. The engineering and procurement cycles have been included to ensure that the equipment is available to support the proposed pumping sequences and durations.

- The technical issues are included as logical steps to pump specific tanks. An example of this is the installation of a saltwell screen in Tank BY-105. This tank contains 62 tons of Portland cement.

- The regulatory issues addressed in the schedule are the NOC for installation of exhausters in the tanks and the approval of amendments to the Authorization Basis documents.

Interim stabilization is required by RL to segregate the pumping of noncomplexed waste, complexed waste, and complexed transuranic waste. This results in three pumping campaigns in the 200 West Area (one for each type of waste). The largest volume of the waste is classified as "noncomplexed," so it is scheduled to be pumped first, beginning with the longest pumping-duration tanks. The critical path is established by pumping durations. The tanks with the longest pumping durations are in SX Farm. Fortunately, the SX tanks will not require additional exhausters and, because Tank SX-104 is currently pumping, the DCRT (244-S) is in service. Within each campaign, tanks with the longest pumping duration reside first in the sequence. Tanks will be pumped in groups within tank farms starting with the SX Farm, followed by the S Farm and U Farm. Pumping of the U Farm tanks will be deferred somewhat because they tend to be shorter pumping durations and they contain much of the complexed waste. Although pumping groups will extend the schedule slightly, there are cost and labor-use benefits.

When the pumping is completed in the noncomplexed waste tanks, pumping will be initiated in the five tanks currently classified as "complexed," using the same sequencing criteria as discussed above. All of the tanks will be pumped simultaneously. The estimated pumping duration is 15 months.

Pumping of Tank U-106, the only "organic TRANSURANIC" waste, will be deferred until pumping of all of the other tanks in 200 West Area is complete.

In the 200 East Area, all of the tanks are required to have an exhauster. This results in a delay until the exhausters can be modified and installed. Tanks A-101 and AX-101 will be started when the exhausters are installed and the Authorization Basis amendments are approved. In the case of BY-105, tools need to be developed to enable installation of the saltwell screen. Pumping BY-106 has been coordinated with BY-105. Tank C-103 will be pumped following development of appropriate technology for the removal of the floating organic solvent layer.

This schedule, which would complete pumping in 2003, is extremely aggressive. It will present significant challenges throughout the Hanford complex, logistically, technically, and operationally.

6.4.2 Case Number 2 - Schedule Summary

Figure 6-6 identifies the tank pumping sequences and schedule durations based on the technical objectives and the logistical limits imposed by the existing physical systems (refer to Section 4.4). This figure is a graphical representation of Figure 6-7, which was developed for this case using P3.

The annual funding is reduced from the funding proposed in the base case. The funding for Case 2 is $10.1 million and $27.7 million in FY 1998 and FY 1999, respectively, followed by a nominal funding of $12 million per year through the end of the program. These values do not include the $2.2 million in actual FY 1998 costs through March 1998. They also assume carryover of $13.3 million to FY 1999. The schedule was developed by moving out scope items identified in the base case (i.e., tank schedules) in time to match the funding constraints. In general, the sequence in which tanks are pumped in Case 1 was honored. An exception is C-103, which was moved to the end of the schedule to minimize the impact on the pumping of other tanks. It should be noted that the project could not effectively use the proposed budget of $28 million in FY 1999. The detailed schedule revealed that less than $21 million could be used effectively in FY 1999.

As in the base case, the tanks that are currently in pumping status (T-104, T-110, SX-104) will continue to be pumped. Work will continue on tanks for which the preparation work has been started (A-101, AX-101, BY-106). The technology development for installing the saltwell screen in BY-105 (an assumed leaker) also will be prioritized.

Work also will be initiated on the tanks in SX Farm with the longest pumping duration. As in the base case, these tanks will be on the critical path to completion of the entire project. Work in S Farm and U Farm will proceed in a manner that minimizes the total project duration. This schedule continues to reflect three pumping campaigns in 200 West Area: noncomplexed waste, complexed waste, and complexed-TRU waste.

Under this funding basis, IS will be completed in 2010. The extended duration of this activity has the potential for interferences with Retrieval and Privatization. It is difficult to fully define and resolve the issues at this time because of the numerous alternatives being considered in each of the projects. If this case is selected for execution, it will be necessary to continue coordination with the other projects that are using the same resources.

6.4.3 Case Number 3 - Schedule Summary

Figure 6-8 summarizes the tank pumping sequences and schedule durations based on the technical objectives and the logistical limits imposed by the existing physical systems (refer to Section 4.4). This figure is a graphical representation of Figure 6-9, which was developed for this case using P3.

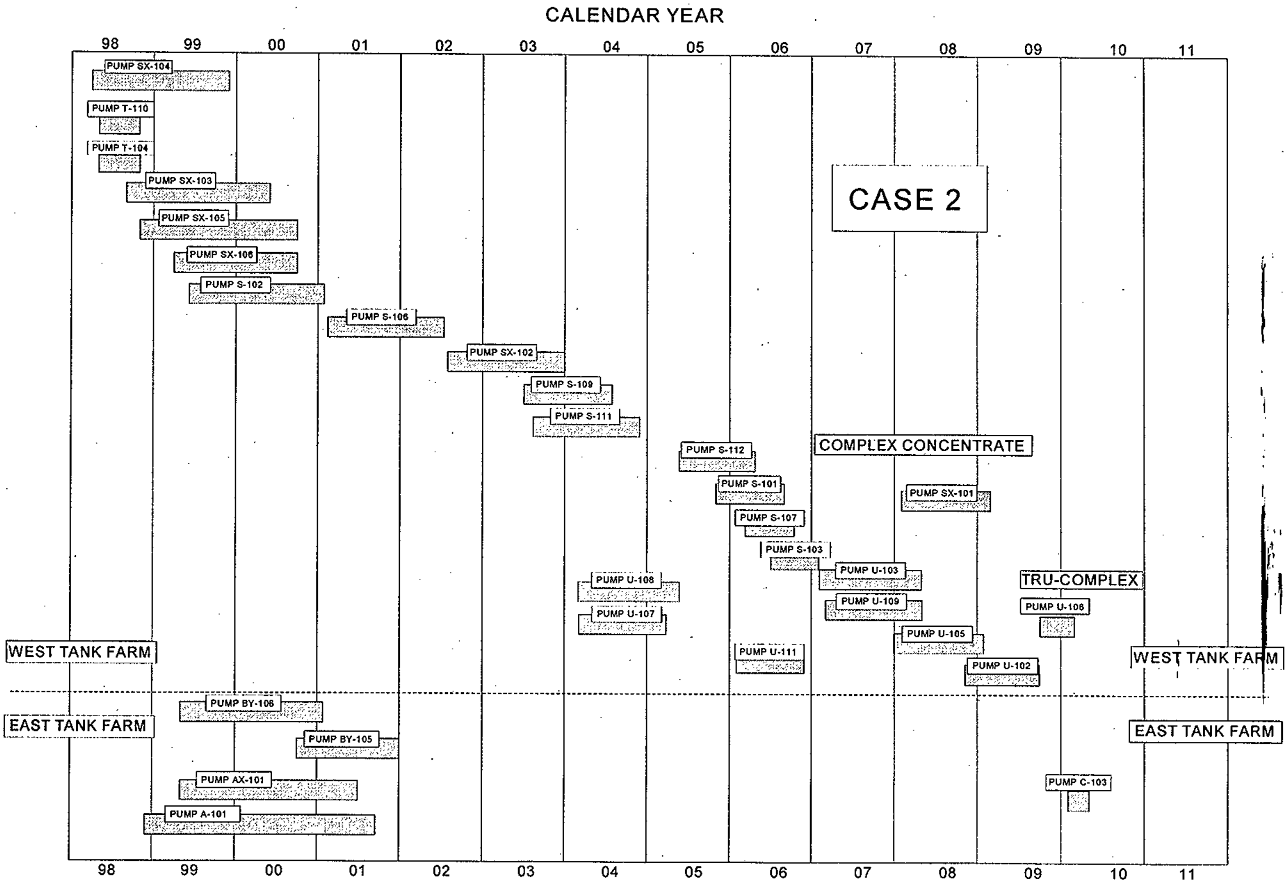
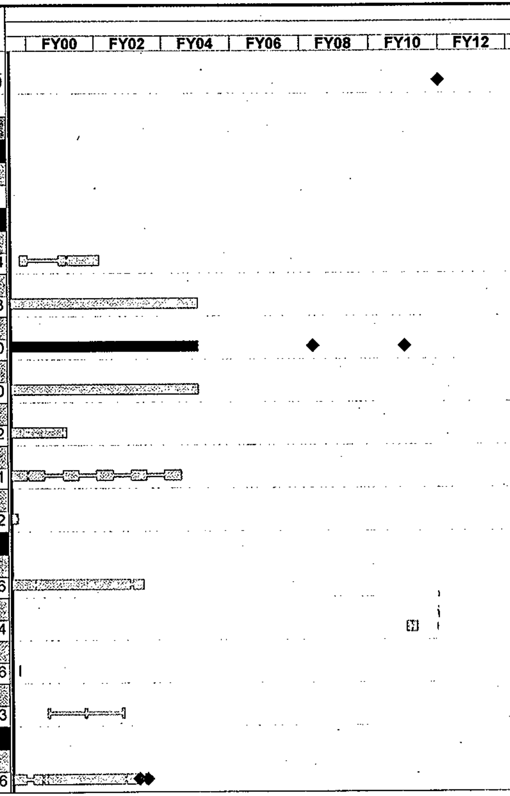


Figure 6-6. Single-Shell Tank Interim Stabilization Project Case 2 Summary Schedule.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
SSTMS01	M-41-00 COMPL SST INTERIM	0		05OCT10	0
1					
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.39 SST Project Mgt/Tech Support/Compliance					
+1.01.02.01.04.39.01 SST Process Engineering Studies					
		593	01JUL98	08NOV00	2,484
+1.01.02.01.04.39.02 Baseline/Financial Control					
		1,381	01APR98	30SEP03	3
+1.01.02.01.04.39.03 Project Management					
		2,886	01APR98	29SEP09	0
+1.01.02.01.04.39.04 Regulatory/Environmental Compliance					
		1,381	01APR98	30SEP03	1,760
+1.01.02.01.04.39.05 SST Stabilization Capital Equipment					
		409	01APR98	12NOV99	2,732
+1.01.02.01.04.39.06 Maintain Emergency Pumping Capability					
		1,250	01APR98	25MAR03	1,891
+1.01.02.01.04.39.07 Overground Transfer Lines					
		49	01APR98	09JUN98	3,092
1.01.02.01.04.40 SST 241-A Tank Farm Stabilization/Isolation					
+1.01.02.01.04.40.01 Stabilize and Isolate Tank A-101					
		965	01APR98	04FEB02	2,176
+1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102					
		70	01OCT09	13JAN10	184
+1.01.02.01.04.40.20 Tank Ventilation Sys 241-A Tank Farm					
		6	11JUN98	18JUN98	86
+1.01.02.01.04.40.40 241-A Tank Farm Annual Hydro					
		577	01APR99	17JUL01	2,313
1.01.02.01.04.41 SST 241-AX Tank Farm Stabilization/Isolation					
+1.01.02.01.04.41.01 Stabilize and Isolate Tank AX-101					
		985	01APR98	05MAR02	2,156



Project Start	01OCT97
Project Finish	05OCT10
Data Date	01APR98
Run Date	27MAR98

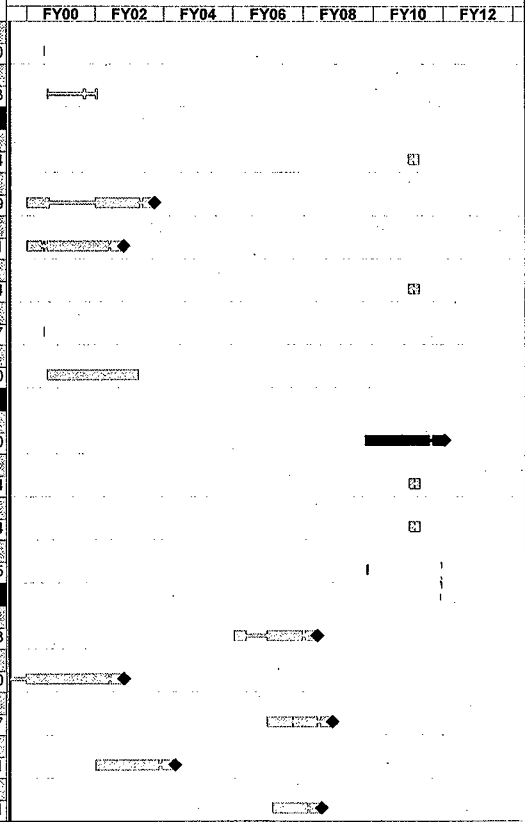
Early Bar
Progress Bar
Critical Activity

WHT2

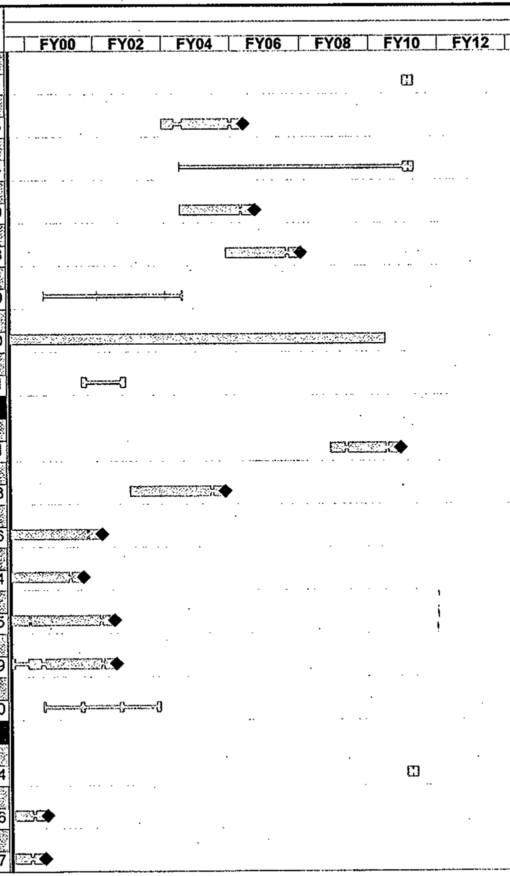
Sheet 1 of 4

Figure 6-7, Single-Shell Tank Interim Stabilization Integrated Summary Schedule, Case 2

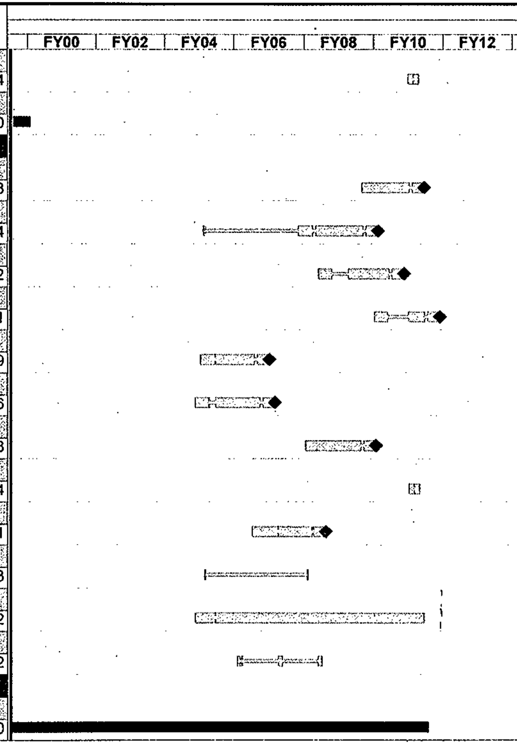
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.41.20 Tank Ventilation Sys 241-AX Tank Farm					
		6	02APR99	09APR99	0
+ 1.01.02.01.04.41.40 241-AX Tank Farm Annual Hydro					
		375	03MAY99	26OCT00	2,493
1.01.02.01.04.43 SST 241-BY Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.43.03 Stabilize and Isolate Tank BY-103					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.43.05 Stabilize and Isolate Tank BY-105					
		935	01OCT98	21JUN02	2,079
+ 1.01.02.01.04.43.06 Stabilize and Isolate Tank BY-106					
		703	01OCT98	19JUL01	2,311
+ 1.01.02.01.04.43.09 Stabilize and Isolate Tank BY-109					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.43.20 Tank Ventilation Sys SST 241-BX Tank Farm					
		6	02APR99	09APR99	7
+ 1.01.02.01.04.43.30 DCRT 244-BX for SST 241-BY Tank Farm					
		668	03MAY99	31DEC01	2,200
1.01.02.01.04.44 SST 241-C Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.44.03 Stabilize and Isolate Tank C-103					
		568	01JUL08	05OCT10	0
+ 1.01.02.01.04.44.05 Stabilize and Isolate Tank C-105					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.44.06 Stabilize and Isolate Tank C-106					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.44.20 Tank Ventilation Sys SST 241-C Tank Farm					
		6	18JUL08	25JUL08	365
1.01.02.01.04.45 SST 241-S Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.45.01 Stabilize and Isolate Tank S-101					
		595	01OCT04	15FEB07	913
+ 1.01.02.01.04.45.02 Stabilize and Isolate Tank S-102					
		831	01APR98	20JUL01	2,310
+ 1.01.02.01.04.45.03 Stabilize and Isolate Tank S-103					
		471	01SEP05	18JUL07	807
+ 1.01.02.01.04.45.06 Stabilize and Isolate Tank S-106					
		571	02OCT00	13JAN03	1,941
+ 1.01.02.01.04.45.07 Stabilize and Isolate Tank S-107					
		355	01NOV05	03APR07	881



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108				
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109				
		598	01OCT02	17FEB05	1,413
+ 1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110				
		1,703	01APR03	13JAN10	184
+ 1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111				
		547	01APR03	02JUN05	1,340
+ 1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112				
		553	02AUG04	12OCT06	998
+ 1.01.02.01.04.45.20	Tank Ventilation Sys SST 241-S Tank Farm				
		1,023	02APR99	29APR03	620
+ 1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm				
		2,741	01APR98	04MAR09	400
+ 1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro				
		317	15MAY00	16AUG01	2,291
1.01.02.01.04.46	SST 241-SX Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101				
		517	01AUG07	21AUG09	281
+ 1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102				
		703	01OCT01	21JUL04	1,558
+ 1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103				
		675	01APR98	06DEC00	2,466
+ 1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104				
		537	01APR98	18MAY00	2,604
+ 1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105				
		766	01APR98	18APR01	2,375
+ 1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106				
		772	01APR98	26APR01	2,369
+ 1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro				
		873	01MAR99	19AUG02	2,040
1.01.02.01.04.47	SST 241-T Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101				
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104				
		243	01MAY98	20APR99	2,876
+ 1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110				
		222	01MAY98	22MAR99	2,897



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.47.11 Stabilize and Isolate Tank T-111					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.47.30 DCRT 244-TX for SST 241-T Tank Farm					
		127*	01MAY98	30OCT98	0
1.01.02.01.04.48 SST 241-U Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.48.02 Stabilize and Isolate Tank U-102					
		451	02JUN08	19MAR10	138
+ 1.01.02.01.04.48.03 Stabilize and Isolate Tank U-103					
		1,262	04NOV03	12NOV08	474
+ 1.01.02.01.04.48.05 Stabilize and Isolate Tank U-105					
		623	01MAR07	20AUG09	282
+ 1.01.02.01.04.48.06 Stabilize and Isolate Tank U-106					
		474	01OCT08	20AUG10	31
+ 1.01.02.01.04.48.07 Stabilize and Isolate Tank U-107					
		501	01OCT03	28SEP05	1,259
+ 1.01.02.01.04.48.08 Stabilize and Isolate Tank U-108					
		586	01AUG03	30NOV05	1,216
+ 1.01.02.01.04.48.09 Stabilize and Isolate Tank U-109					
		519	02OCT06	23OCT08	488
+ 1.01.02.01.04.48.10 Stabilize and Isolate Tank U-110					
		70	01OCT09	13JAN10	184
+ 1.01.02.01.04.48.11 Stabilize and Isolate Tank U-111					
		533	01APR05	15MAY07	851
+ 1.01.02.01.04.48.20 Tank Ventilation Sys SST 241-U Tank Farm					
		740	18NOV03	30OCT06	723
+ 1.01.02.01.04.48.30 DCRT 244-U for SST 241-U Tank Farm					
		1,649	04AUG03	01MAR10	152
+ 1.01.02.01.04.48.40 241-U Tank Farm Annual Hydro					
		607	28OCT04	02APR07	882
1.01.02.01.04.72 SST Stabilization Pumping					
+ 1.01.02.01.04.72.01 Pumping for Remaining SST's (29)					
		,023*	01APR98	16APR10	0



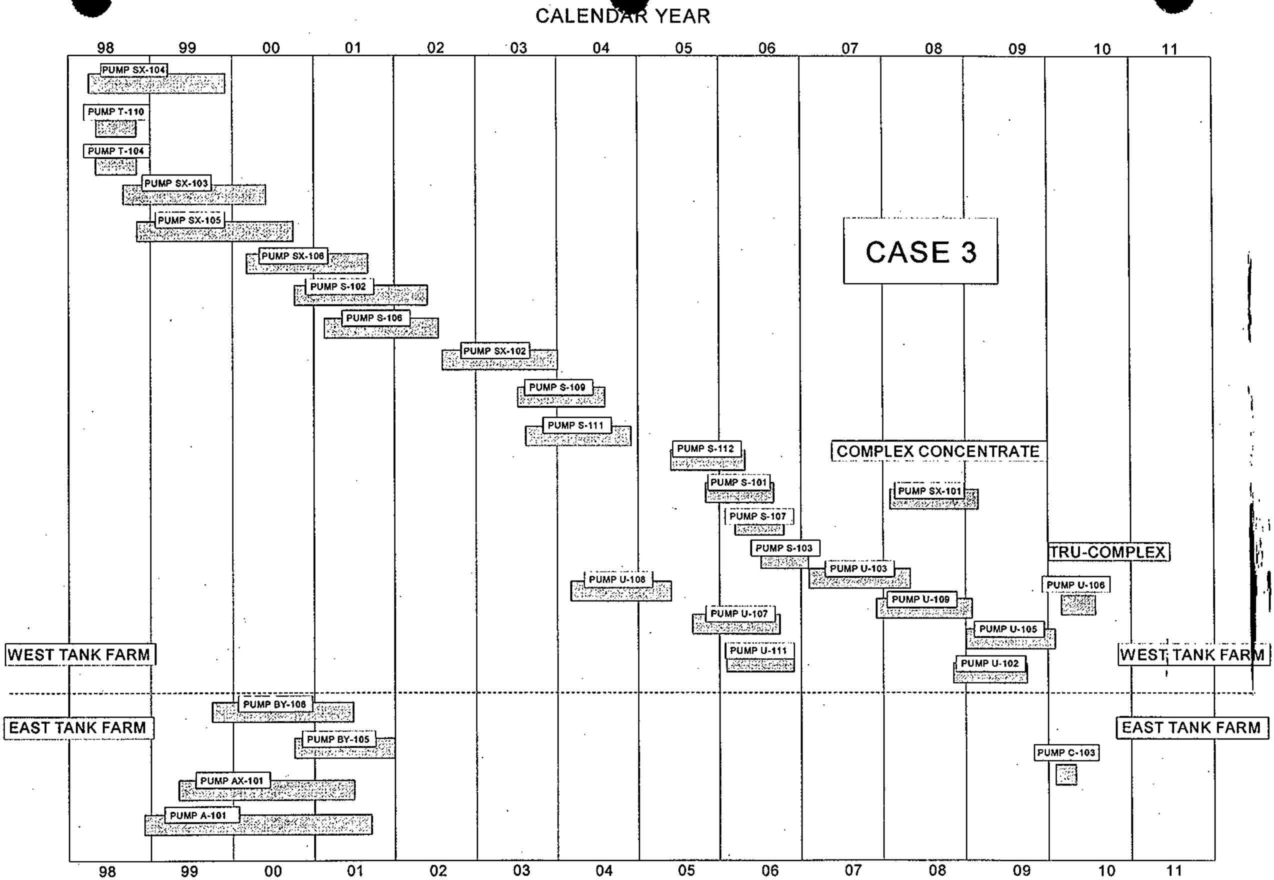
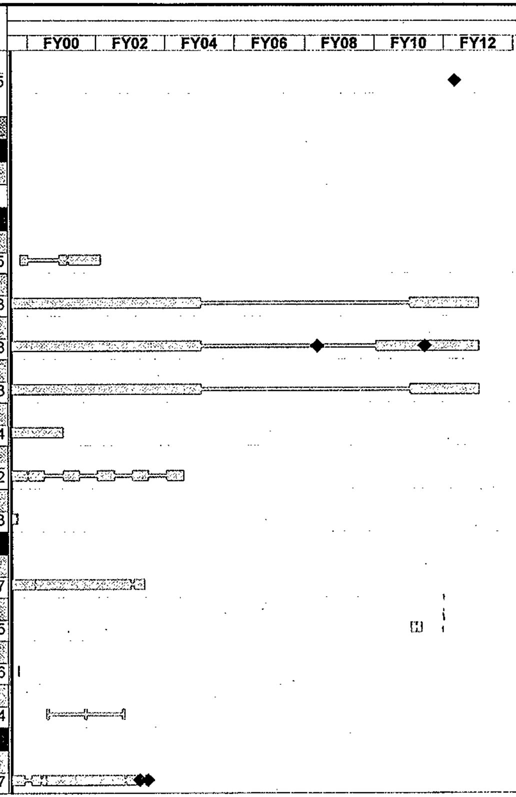


Figure 6-8. Single-Shell Tank Interim Stabilization Project Case 3 Summary Schedule.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
SSTMS01	M-41-00 COMPL SST INTERIM	0		26JAN11	1,175
1					
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.39 SST Project Mgt/Tech Support/Compliance					
+ 1.01.02.01.04.39.01 SST Process Engineering Studies					
		593	01JUL98	08NOV00	3,735
+ 1.01.02.01.04.39.02 Baseline/Financial Control					
		3,389	01APR98	30SEP11	1,003
+ 1.01.02.01.04.39.03 Project Management					
		3,384	01APR98	23SEP11	1,008
+ 1.01.02.01.04.39.04 Regulatory/Environmental Compliance					
		3,384	01APR98	23SEP11	1,008
+ 1.01.02.01.04.39.05 SST Stabilization Capital Equipment					
		378	01APR98	30SEP99	4,014
+ 1.01.02.01.04.39.06 Maintain Emergency Pumping Capability					
		1,250	01APR98	25MAR03	3,142
+ 1.01.02.01.04.39.07 Overground Transfer Lines					
		49	01APR98	09JUN98	4,343
1.01.02.01.04.40 SST 241-A Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.40.01 Stabilize and Isolate Tank A-101					
		965	01APR98	04FEB02	3,427
+ 1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102					
		70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.40.20 Tank Ventilation Sys 241-A Tank Farm					
		6	11JUN98	18JUN98	86
+ 1.01.02.01.04.40.40 241-A Tank Farm Annual Hydro					
		577	01APR99	17JUL01	3,564
1.01.02.01.04.41 SST 241-AX Tank Farm Stabilization/Isolation					
+ 1.01.02.01.04.41.01 Stabilize and Isolate Tank AX-101					
		985	01APR98	05MAR02	3,407



Project Start 01OCT97
Project Finish 30SEP15
Data Date 01APR98
Run Date 27MAR98

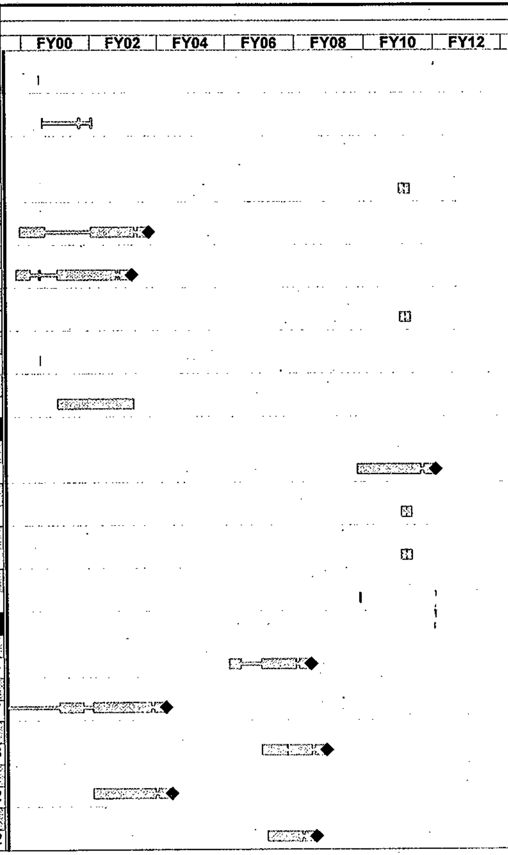
Early Bar
Progress Bar
Critical Activity

WHTF

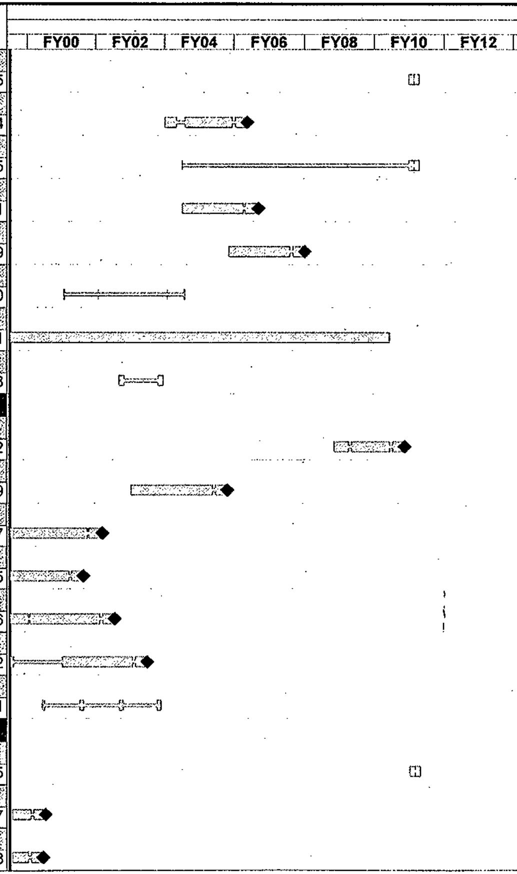
Sheet 1 of 4

Figure 6-9, Single-Shell Tank Interim Stabilization Integrated Summary Schedule, Case 3

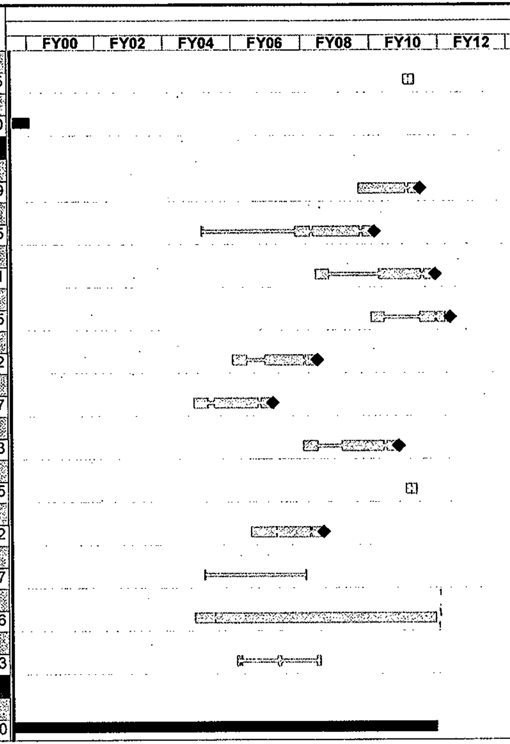
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm	6	02APR99	09APR99	0
+ 1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro	375	03MAY99	26OCT00	3,744
1.01.02.01.04.43	SST 241-BY Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103	70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105	956	01SEP98	21JUN02	3,330
+ 1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106	859	22JUL98	19DEC01	3,456
+ 1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109	70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.43.20	Tank Ventilation Sys SST 241-BX Tank Farm	6	02APR99	09APR99	112
+ 1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm	563	01OCT99	31DEC01	3,451
1.01.02.01.04.44	SST 241-C Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103	568	01JUL08	05OCT10	1,251
+ 1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105	70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106	70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.44.20	Tank Ventilation Sys SST 241-C Tank Farm	6	18JUL08	25JUL08	365
1.01.02.01.04.45	SST 241-S Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101	595	01OCT04	15FEB07	2,164
+ 1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	1,165	01APR98	18NOV02	3,227
+ 1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	471	01SEP05	18JUL07	2,058
+ 1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106	571	02OCT00	13JAN03	3,192
+ 1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107	355	01NOV05	03APR07	2,132



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108				
		70	01OCT09	13JAN10	1,435
+1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109				
		598	01OCT02	17FEB05	2,664
+1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110				
		1,703	01APR03	13JAN10	1,435
+1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111				
		547	01APR03	02JUN05	2,591
+1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112				
		553	02AUG04	12OCT06	2,249
+1.01.02.01.04.45.20	Tank Ventilation Sys SST 241-S Tank Farm				
		882	22OCT99	29APR03	620
+1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm				
		2,741	01APR98	04MAR09	1,651
+1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro				
		317	04JUN01	06SEP02	3,278
1.01.02.01.04.46	SST 241-SX Tank Farm Stabilization/Isolation				
+1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101				
		517	01AUG07	21AUG09	1,532
+1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102				
		703	01OCT01	21JUL04	2,809
+1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103				
		675	01APR98	06DEC00	3,717
+1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104				
		537	01APR98	18MAY00	3,855
+1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105				
		766	01APR98	18APR01	3,626
+1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106				
		1,000	01APR98	26MAR02	3,392
+1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro				
		873	01MAR99	19AUG02	3,291
1.01.02.01.04.47	SST 241-T Tank Farm Stabilization/Isolation				
+1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101				
		70	01OCT09	13JAN10	1,435
+1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104				
		243	01MAY98	20APR99	4,127
+1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110				
		222	01MAY98	22MAR99	4,148



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
+ 1.01.02.01.04.47.11	Stabilize and Isolate Tank T-111				
		70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm				
		127*	01MAY98	30OCT98	0
1.01.02.01.04.48	SST 241-U Tank Farm Stabilization/Isolation				
+ 1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102				
		451	02JUN08	19MAR10	1,389
+ 1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103				
		1,262	04NOV03	12NOV08	1,725
+ 1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105				
		875	01MAR07	23AUG10	1,281
+ 1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106				
		581	01OCT08	26JAN11	1,175
+ 1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107				
		617	01OCT04	20MAR07	2,142
+ 1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108				
		586	01AUG03	30NOV05	2,467
+ 1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109				
		705	02OCT06	23JUL09	1,553
+ 1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110				
		70	01OCT09	13JAN10	1,435
+ 1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111				
		533	01APR05	15MAY07	2,102
+ 1.01.02.01.04.48.20	Tank Ventilation Sys SST 241-U Tank Farm				
		740	18NOV03	30OCT06	827
+ 1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm				
		1,756	04AUG03	02AUG10	1,296
+ 1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro				
		607	28OCT04	02APR07	2,133
1.01.02.01.04.72	SST Stabilization Pumping				
+ 1.01.02.01.04.72.01	Pumping for Remaining SST's (29)				
		,096*	01APR98	02AUG10	0



The annual funding is reduced from the funding proposed in the base cases. The funding for Case 3 is $10.1 million and $14.4 million in FY 1998 and FY 1999, respectively, followed by a nominal funding of $12 million per year through the end of the program. These values do not include the $2.2 million in actual FY 1998 costs through March 1998. The schedule was developed by moving out scope items identified in the base case (i.e., tank schedules) in time to match the funding constraints. In general, the sequence in which tanks are pumped in Case 1 was honored. However, there were some adjustments to the sequence to optimize the funding utilization and level the resource requirements. A specific example is C-103, which was moved to the end of the schedule to minimize the impact on the pumping of other tanks.

Similar to the previous cases, the tanks that are currently in pumping status (T-104, T-110, SX-104) will continue to be pumped. Work will continue on tanks for which the preparation work has been started (A-101, AX-101, BY-106). The technology development for installing the saltwell screen in BY-105 (an assumed leaker) also will be prioritized.

Work also will be initiated on the tanks in SX Farm with the longest pumping duration. As in the base case, these tanks will be on the critical path to completion of the entire project. Work in S Farm and U Farm will proceed in a manner that minimizes the total project duration. This schedule continues to reflect three pumping campaigns in 200 West Area: noncomplexed waste, complexed waste, and complexed-TRU waste.

The reduced funding in the early years results in extending the duration of the project by one year from Case 2 funding and increasing the costs. Interim stabilization for this case will be completed in 2011. The extended duration of this activity has the potential for interferences with Retrieval and Privatization. It is difficult to fully define and resolve the issues at this time because of the numerous alternatives being considered in each of the projects. If this case is selected for execution, it will be necessary to continue coordination with the other projects that are using the same resources.

6.5 RESOURCES

6.5.1 Case Number 1 - Base Case Cost by Work Breakdown Structure

Table 6-2 summarizes the base case escalated costs by fiscal year (FY 1998 through FY 2003) that are necessary to complete the remainder of the SST IS scope of work defined in the detailed P3 schedule. Table 6-3 provides the base case unescalated costs by WBS. Pricing for these spreadsheets was performed in P3 using the current FDH-approved labor-rate tables and other approved pricing data (labor and material adders, G&A, MPR, etc.). The costs in Tables 6-2 and 6-3 are consistent with the detailed base case schedule discussed in Section 6.4.1 and are supported by the technical basis review package data including the CEIS estimates used to resource load the activities in the schedule.

Table 6-2. Single-Shell Tank Interim Stabilization Project, Escalated Base Case (Case 1) Costs by Fiscal Year.

Cost	Total	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
Total Cost in 1998 Dollars	117,380	18,309	31,900	25,513	25,204	11,442	5,012
Total Escalation	6,356	0	861	1,396	2,097	1,287	714
Total Escalated Cost	123,736	18,309	32,761	26,909	27,301	12,729	5,726

Escalation has been applied at a rate of 2.7% annually.

6.5.2 Case Number 2 - Cost by Work Breakdown Structure

Table 6-4 summarizes the Case 2 escalated costs by fiscal year (1998 through 2010) that are necessary to complete the remainder of the SST IS scope of work defined in the P3 RL-WBS summary schedule (Figure 6-7). Table 6-5 provides the Case 2 unescalated costs by WBS. Pricing for these spreadsheets was performed in P3 using the current FDH-approved labor-rate tables and other approved pricing data (labor and material adders, G&A, MPR, etc.). Costs in Tables 6-4 and 6-5 are consistent with the Case 2 schedule.

6.5.3 Case Number 3 - Cost by Work Breakdown Structure

Table 6-6 summarizes the Case 3 escalated costs by fiscal year (1998 through 2011) that are necessary to complete the remainder of the SST IS scope of work defined in the P3 RL-WBS summary schedule (Figure 6-9). Table 6-7 provides the Case 3 unescalated costs by WBS. Pricing for these spreadsheets was performed in P3 using the current FDH-approved labor-rate tables and other approved pricing data (labor and material adders, G&A, MPR, etc.). Costs in Tables 6-6 and 6-7 are consistent with the Case 2 schedule.

6.5.4 Case 1 (Base Case) Labor Resources

Table 6-8 summarizes the FTEs by WBS and fiscal year that are necessary to complete the remainder of the SST IS scope of work as defined in the base case P3 detailed schedule. This FTE spreadsheet was generated in P3, based on the workhour resource loading with 1,805 workhours per year assumed. The labor resources have been coded in the CEISs and schedule by P3 resource code, cost element, and resource description.

Existing staff availability and ramp-up (hiring and training) was evaluated in developing the schedule to ensure that the plan is achievable. Tank pumping operations have been logically grouped and scheduled to provide for the most efficient use of resources.

Table 6-3. Single-Shell Tank Interim Stabilization Case 1 Cost By Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (2 sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
1.01.02.01.04.39.01	SST Process Engineering Studies	398	13	2	269	114		
1.01.02.01.04.39.02	Baseline/Financial Control	1014	147	171	176	253	223	44
1.01.02.01.04.39.03	Project Management	19988	1934	5174	4697	3680	3170	1335
1.01.02.01.04.39.04	Regulatory/Environmental Compliance	8146	1215	1768	1813	1538	1358	454
1.01.02.01.04.39.05	SST Stabilization Capital Equipment	9335	3601	4530		1205		
1.01.02.01.04.39.06	Maintain SST Emergency Pumping Capability	647	106	106	109	109	109	109
1.01.02.01.04.39.07	Overground Transfer Lines	201	201					
1.01.02.01.04.40.01	Stabilize and Isolate Tank A-101	1233	395	267	181	214	177	
1.01.02.01.04.40.02	Stabilize and Isolate Tank A-102	215	215					
1.01.02.01.04.40.20	Tank Ventilation Sys 241-A Tank Farm	38	38					
1.01.02.01.04.40.40	241-A Tank Farm Annual Hydro	200		65	67	67		
1.01.02.01.04.41.01	Stabilize and Isolate Tank AX-101	1424	458	351	229	207	178	
1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm	38		38				
1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro	268		65	202			
1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103	430	430					
1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105	1310	49	745	333	183		
1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106	1659	887	166	285	320		
1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109	215	215					
1.01.02.01.04.43.20	Tank Ventilation Sys 241-BY Tank Farm	38		38				
1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm	311		75	179	58		
1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103	5726		3413	1298	1016		
1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105	215	215					
1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106	215	215					
1.01.02.01.04.44.20	Tank Ventilation Sys 241-C Tank Farm	39				39		
1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101	1460			935	525		
1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	2527	40	1833	463	189		
1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	2549	562	200	1264	523		
1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106	1485		788	353	344		
1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107	1316			658	657		
1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108	215	215					
1.0[illegible]01.04.45.09	Stabilize and Isolate Tank S-109	1701		974	429	298		

Table 6-3. Single-Shell Tank Interim Stabilization Case 1 Cost By Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (2 sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110	220	215	5				
1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111	1560		785	363	412		
1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112	1828		517	800	512		
1.01.02.01.04.45.20	Tank Ventilation Sys 241-S Tank Farm	151		151				
1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm	2302	221	438	553	534	556	
1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro	607			202	405		
1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101	1865				1302	380	183
1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102	1997	131	1303	266	299		
1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103	1729	1005	335	211	178		
1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104	992	493	234	265			
1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105	2192	1559	194	210	229		
1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106	1610	784	374	270	183		
1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro	955		196	557	135	67	
1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101	215	215					
1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104	673	381	291				
1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110	1132	756	376				
1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm	128	106	22				
1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102	1561				875	503	182
1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103	1737		522	488	127	411	189
1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105	1599				1079	338	182
1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106	1606					931	674
1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107	1415			976	436	4	
1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108	2642		1253	935	450	4	
1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109	1677				1094	402	182
1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110	215	215					
1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111	2149		493	1079	573	4	
1.01.02.01.04.48.20	Tank Ventilation Sys 241-U Tank Farm	116			78	39		
1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm	1826		442	312	369	398	304
1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro	630			72	62	225	270
1.01.02.01.04.72.01	Pumping for Remaining SST's (29)	15609	1001	3390	3937	4373	2003	905
	REPORT TOTAL	**117381**	**18309**	**31900**	**25513**	**25204**	**11442**	**5012**

Table 6-4. Single-Shell Tank Interim Stabilization Project, Escalated Base Case 2 Costs by Fiscal Year.

Cost	Total	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Total Cost in 1998 Dollars	131,524	9,629	20,722	9,763	10,836	9,070	8,982	9,362	9,383	9,482	9,885	9,818	8,130	6,462
Total Escalation	20,973	0	559	534	902	1,020	1,280	1,623	1,924	2,252	2,679	2,997	2,768	2,434
Total Escalated Cost	152,497	9,629	21,281	10,297	11,738	10,090	10,262	10,985	11,307	11,734	12,564	12,815	10,898	8,896

Escalation has been applied at a rate of 2.7% annually.

Table 6-5. Single-Shell Tank Interim Stabilization Case 2 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (2 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
1.01.02.01.04.39.01	SST Process Engineering Studies	398	13	2	269	114									
1.01.02.01.04.39.02	Baseline/Financial Control	1070	70	171	79	129	129	76	73	74	69	67	66	44	22
1.01.02.01.04.39.03	Project Management	21926	1803	3946	2207	1866	1746	1736	1624	1488	1404	1382	1359	906	458
1.01.02.01.04.39.04	Regulatory/Environmental Compliance	10871	802	1768	811	786	1635	788	754	765	709	693	678	452	229
1.01.02.01.04.39.05	SST Stabilization Capital Equipment	13053	831	3684	96	1017	941	911	990	960	930	910	890	594	300
1.01.02.01.04.39.06	Maintain SST Emergency Pumping Capabilit	647	106	106	109	109	109	109							
1.01.02.01.04.39.07	Overground Transfer Lines	201	201												
1.01.02.01.04.40.01	Stabilize and Isolate Tank A-101	1233	395	265	181	215	177								
1.01.02.01.04.40.02	Stabilize and Isolate Tank A-102	214													214
1.01.02.01.04.40.20	Tank Ventilation Sys 241-A Tank Farm	38	38												
1.01.02.01.04.40.40	241-A Tank Farm Annual Hydro	200		65	67	67									
1.01.02.01.04.41.01	Stabilize and Isolate Tank AX-101	1424	458	340	229	212	185								
1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm	38		38											
1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro	268		65	67	135									
1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103	428													428
1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105	1312		688		316	308								
1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106	1655		1050	285	320									
1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109	214													214
1.01.02.01.04.43.20	Tank Ventilation Sys 241-BY Tank Farm	38		38											
1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm	311		64	153	83	12								
1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103	5884											2651	1922	1311
1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105	214													214
1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106	214													214
1.01.02.01.04.44.20	Tank Ventilation Sys 241-C Tank Farm	39											39		
1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101	1460								658	619	183			
1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	2525	190	1753	356	227									
1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	2537		749						266	1074	446			
1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106	1503				997	325	181							
1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107	1316									1082	234			
1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108	214													214
1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109	1725						1109	433	183					
1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110	219						5							214
1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111	1578						898	378	303					
1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112	1842							494	813	533	3			
1.01.02.01.04.45.20	Tank Ventilation Sys 241-S Tank Farm	154		38		39		78							

Table 6-5. Single-Shell Tank Interim Stabilization Case 2 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (2 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm	2312	90	178	178	178	177	195	317	206	177	178	291	144	
1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro	607			202	405									
1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101	1865										990	496	378	
1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102	2033					1455	266	312						
1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103	1729	1005	335	211	178									
1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104	617	118	234	265										
1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105	2192	1559	194	210	229									
1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106	1608	73	1040	255	240									
1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro	955		196	557	135	67								
1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101	214													214
1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104	444	190	254											
1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110	659	257	188											214
1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm	128	106	22											
1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102	1561											718	655	187
1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103	1752							43		643	598	300	167	
1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105	1599										974	258	367	
1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106	1606												985	621
1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107	1415							998	418					
1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108	2677						893	1285	322	177				
1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109	1677										1198	475	5	
1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110	214													214
1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111	2162								1352	497	314			
1.01.02.01.04.48.20	Tank Ventilation Sys 241-U Tank Farm	116							78			39			
1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm	1836						257	388	218	137	231	227	139	238
1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro	630								135	225	270			
1.01.02.01.04.72.01	**Pumping for Remaining SST's (29)**	**21952**	**1322**	**3252**	**2975**	**2840**	**1803**	**1478**	**1195**	**1223**	**1205**	**1175**	**1370**	**1370**	**743**
	REPORT TOTAL	**131522**	**9629**	**20722**	**9763**	**10836**	**9070**	**8982**	**9362**	**9383**	**9482**	**9885**	**9818**	**8130**	**6462**

Table 6-6. Single-Shell Tank Interim Stabilization Project, Escalated Base Case 3 Costs by Fiscal Year.

Cost	Total	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Cost in 1998 Dollars	132,319	10,444	14,089	11,469	10,874	10,008	9,497	9,003	9,975	9,850	9,624	9,318	8,605	7,938	1,625
Total Escalation	22,383	0	380	628	905	1,125	1,353	1,561	2,045	2,340	2,608	2,845	2,930	2,990	673
Total Escalated Cost	**154,702**	**10,444**	**14,469**	**12,097**	**11,779**	**11,133**	**10,850**	**10,564**	**12,020**	**12,190**	**12,232**	**12,163**	**11,535**	**10,928**	**2,298**

Escalation has been applied at a rate of 2.7% annually.

Table 6-7. Single-Shell Tank Interim Stabilization Case 3 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (4 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.01.02.01.04.39.01	SST Process Engineering Studies	396	13	1	267	114										
1.01.02.01.04.39.02	Baseline/Financial Control	1006	70	86	79	129	129	76	73	74	69	67	66	44	22	22
1.01.02.01.04.39.03	Project Management	22864	1803	2280	2207	1866	1746	1736	1624	1488	1404	1382	1359	1254	1377	1337
1.01.02.01.04.39.04	Regulatory/Environmental Compliance	10079	802	884	811	786	1635	788	754	765	709	693	678	452	238	83
1.01.02.01.04.39.05	SST Stabilization Capital Equipment	13047	921	3684		1017	941	911	990	960	930	910	890	594	300	
1.01.02.01.04.39.06	Maintain SST Emergency Pumping Capabilit	647	106	106	109	109	109	109								
1.01.02.01.04.39.07	Overground Transfer Lines	201	201													
1.01.02.01.04.40.01	Stabilize and Isolate Tank A-101	1233	395	265	181	215	177									
1.01.02.01.04.40.02	Stabilize and Isolate Tank A-102	214													214	
1.01.02.01.04.40.20	Tank Ventilation Sys 241-A Tank Farm	38	38													
1.01.02.01.04.40.40	241-A Tank Farm Annual Hydro	200		65	67	67										
1.01.02.01.04.41.01	Stabilize and Isolate Tank AX-101	1424	458	340	229	212	185									
1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm	38		38												
1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro	268		65	67	135										
1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103	428													428	
1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105	1312	246	442		316	308									
1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106	1655	631	300	285	258	181									

Table 6-7. Single-Shell Tank Interim Stabilization Case 3 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (4 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109	214													214	
1.01.02.01.04.43.20	Tank Ventilation Sys 241-BY Tank Farm	38		38												
1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm	311			162	135	14									
1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103	5885											2651	1922	1311	1
1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105	214													214	
1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106	214													214	
1.01.02.01.04.44.20	Tank Ventilation Sys 241-C Tank Farm	39											39			
1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101	1460								658	619	183				
1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	2571	40		1803	424	131	172								
1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	2537		749						266	1074	446				
1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106	1503				997	325	181								
1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107	1316									1082	234				
1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108	214													214	
1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109	1725						1109	433	183						
1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110	219						5							214	
1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111	1578						898	378	303						
1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112	1842							494	813	533	3				

Table 6-7. Single-Shell Tank Interim Stabilization Case 3 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (4 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.01.02.01.04.45.20	Tank Ventilation Sys 241-S Tank Farm	155			39	39		78								
1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm	2312	90	178	178	178	177	195	317	206	177	178	291	144		
1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro	607				202	405									
1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101	1865										990	496	378		
1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102	2033					1455	266	312							
1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103	1729	1005	335	211	178										
1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104	617	118	234	265											
1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105	2192	1559	194	210	229										
1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106	1634	73		1087	273	200									
1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro	955		196	557	135	67									
1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101	214													214	
1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104	444	190	254												
1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110	659	257	188											214	
1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm	128	106	22												
1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102	1561											718	655	187	
1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103	1752							43		643	598	300	167		
1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105	1599										974		257	368	

Table 6-7. Single-Shell Tank Interim Stabilization Case 3 Cost by Work Breakdown Structure (Unescalated). Total Cost ($000) for Year. (4 Sheets)

RL WBS	RL WBS TITLE	TOTAL	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106	1606												981	443	182
1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107	1415								821	403	191				
1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108	2677						893	1285	322	177					
1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109	1677										950	355	372		
1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110	214													214	
1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111	2162								1352	497	314				
1.01.02.01.04.48.20	Tank Ventilation Sys 241-U Tank Farm	116							78			39				
1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm	1836						257	382	209	128	222	218	128	291	
1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro	630								135	225	270				
1.01.02.01.04.72.01	**Pumping for Remaining SST's (29)**	**21617**	**1322**	**3145**	**2655**	**2860**	**1823**	**1823**	**1840**	**1420**	**1180**	**980**	**1257**	**1257**	**1047**	
	REPORT TOTAL	**132319**	**10444**	**14089**	**11469**	**10874**	**10008**	**9497**	**9003**	**9975**	**9850**	**9624**	**9318**	**8605**	**7938**	**1625**

Table 6-8. Single-Shell Tank Interim Stabilization Case 1 Full-Time Equivalents By Work Breakdown Structure. (2 Sheets)

RL WBS	RL WBS TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
1.01.02.01.04.39.01	SST Process Engineering Studies	0.11	0.02	0.14			
1.01.02.01.04.39.02	Baseline/Financial Control	1.3	1.6	1.6	2.21	1.95	0.4
1.01.02.01.04.39.03	Project Management	6.85	13.7	13.7	11.65	10.27	3.43
1.01.02.01.04.39.04	Regulatory/Environmental Compliance	10.42	15.25	15.25	12.94	11.43	3.82
1.01.02.01.04.39.05	SST Stabilization Capital Equipment	16.22	3.54		0.96		
1.01.02.01.04.39.06	Maintain SST Emergency Pumping Capabilit	0.98	0.98	0.98	0.98	0.98	0.98
1.01.02.01.04.39.07	Overground Transfer Lines	1.54					
1.01.02.01.04.40.01	Stabilize and Isolate Tank A-101	3.13	1.3	1.53	1.79	0.65	
1.01.02.01.04.40.02	Stabilize and Isolate Tank A-102	0.95					
1.01.02.01.04.40.20	Tank Ventilation Sys 241-A Tank Farm	0.37					
1.01.02.01.04.40.40	241-A Tank Farm Annual Hydro		0.64	0.64	0.64		
1.01.02.01.04.41.01	Stabilize and Isolate Tank AX-101	3.29	2.77	1.93	1.74	0.65	
1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm		0.37				
1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro		0.64	1.92			
1.01.02.01.04.43.03	Stabilize and Isolate Tank BY-103	1.9					
1.01.02.01.04.43.05	Stabilize and Isolate Tank BY-105	0.43	6.08	2.74	0.7		
1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106	7.09	1.33	2.41	1.84		
1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109	0.95					
1.01.02.01.04.43.20	Tank Ventilation Sys 241-BY Tank Farm		0.37				
1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm		0.57	1.37	0.44		
1.01.02.01.04.44.03	Stabilize and Isolate Tank C-103		9.64	7.25	7.19		
1.01.02.01.04.44.05	Stabilize and Isolate Tank C-105	0.95					
1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106	0.95					
1.01.02.01.04.44.20	Tank Ventilation Sys 241-C Tank Farm				0.37		
1.01.02.01.04.45.01	Stabilize and Isolate Tank S-101			7.38	3.56		
1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	0.37	15.19	3.88	0.76		
1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	1.47	1.02	10.39	3.48		
1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106		6.22	2.96	2.04		
1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107			5.75	4.67		
1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108	0.95					
1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109		8.01	3.6	1.66		
1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110	0.95	0.05				

Table 6-8. Single-Shell Tank Interim Stabilization Case 1 Full-Time Equivalents By Work Breakdown Structure. (2 Sheets)

RL WBS	RL WBS TITLE	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111		6.23	3.08	2.61		
1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112		4.49	6.5	3.44		
1.01.02.01.04.45.20	Tank Ventilation Sys 241-S Tank Farm		1.46				
1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm	1.25	2.47	3.51	3.34	3.67	
1.01.02.01.04.45.40	241-S Tank Farm Annual Hydro			1.92	3.85		
1.01.02.01.04.46.01	Stabilize and Isolate Tank SX-101				10.36	3.11	0.7
1.01.02.01.04.46.02	Stabilize and Isolate Tank SX-102	1.06	10.24	2.18	1.64		
1.01.02.01.04.46.03	Stabilize and Isolate Tank SX-103	8.11	2.89	1.76	0.66		
1.01.02.01.04.46.04	Stabilize and Isolate Tank SX-104	4.98	1.95	1.37			
1.01.02.01.04.46.05	Stabilize and Isolate Tank SX-105	12.42	1.61	1.73	1.08		
1.01.02.01.04.46.06	Stabilize and Isolate Tank SX-106	5.99	3.14	2.22	0.7		
1.01.02.01.04.46.40	241-SX Tank Farm Annual Hydro		1.92	5.29	1.28	0.64	
1.01.02.01.04.47.01	Stabilize and Isolate Tank T-101	0.95					
1.01.02.01.04.47.04	Stabilize and Isolate Tank T-104	3.64	1.7				
1.01.02.01.04.47.10	Stabilize and Isolate Tank T-110	6.55	0.75				
1.01.02.01.04.47.30	DCRT 244-TX for SST 241-T Tank Farm	0.74	0.16				
1.01.02.01.04.48.02	Stabilize and Isolate Tank U-102				7.13	4.21	0.69
1.01.02.01.04.48.03	Stabilize and Isolate Tank U-103		4.65	3.7	1.07	3.44	0.75
1.01.02.01.04.48.05	Stabilize and Isolate Tank U-105				8.95	2.76	0.7
1.01.02.01.04.48.06	Stabilize and Isolate Tank U-106					7.66	4.77
1.01.02.01.04.48.07	Stabilize and Isolate Tank U-107			7.88	2.76	0.03	
1.01.02.01.04.48.08	Stabilize and Isolate Tank U-108		10.49	7.45	2.93	0.03	
1.01.02.01.04.48.09	Stabilize and Isolate Tank U-109				8.94	3.35	0.69
1.01.02.01.04.48.10	Stabilize and Isolate Tank U-110	0.95					
1.01.02.01.04.48.11	Stabilize and Isolate Tank U-111		4.21	8.49	3.96	0.03	
1.01.02.01.04.48.20	Tank Ventilation Sys 241-U Tank Farm			0.73	0.37		
1.01.02.01.04.48.30	DCRT 244-U for SST 241-U Tank Farm		3.94	2.16	2.34	2.61	2.3
1.01.02.01.04.48.40	241-U Tank Farm Annual Hydro			0.65	0.63	2.14	2.56
1.01.02.01.04.72.01	Pumping for Remaining SST's (29)	10.13	34.09	39.41	43.49	19.94	9.01
	REPORT TOTAL	**117.96**	**185.67**	**185.47**	**171.14**	**79.54**	**30.8**

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7.0 ORGANIZATION

The ramp-up and extent of the field activities necessary to execute this baseline mission are unprecedented in the history of the TWRS IS Project. To effectively manage this level of activity, the creation of a focused operational team is required -- a team that commands the operations, maintenance, engineering, and resources needed to meet the day-to-day demands of the schedule. TWRS will establish a separate, dedicated operational unit supported by a seconded engineering function and the maintenance and support resources required to meet the baseline schedule.

7.1 ORGANIZATIONAL STRUCTURE

LMHC has established an organizational structure (Figure 7-1) to manage TWRS as a project and to provide requisite corporate support. This structure is designed to support all TWRS Project mission objectives (resolve safety issues, safe storage, characterization, retrieval/disposal, etc.) and is aligned with the TWRS Project WBS. The organization is flexible and a matrix management approach is used to support individual projects such as the SST IS Project. The organizational elements supporting the SST IS Project are described in this section with roles and responsibilities defined in Section 7.2.

7.1.1 Tank Waste Operations Organization

Tank Waste Operations manages and directs, in a safe and efficient manner, operations, characterization, maintenance, and radiological control of tank activities pertaining to TWRS permitted treatment, storage, and disposal facilities (Figure 7-2). The Characterization and Stabilization Project element of this organization (Figure 7-3) is responsible for Characterization activities and the activities of the SST IS Project.

7.1.2 Single-Shell Tank Interim Stabilization Project Organization

A newly formed SST IS Operations organization (Figure 7-4) will manage and direct, in a safe and efficient manner, the activities for removing as much pumpable supernatant and interstitial liquid as practicable from the remaining 29 noninterim-stabilized SSTs, for transferring this liquid to the DSTs, and for performing SST intrusion prevention to avoid inadvertent liquid addition.

7.2 ROLES AND RESPONSIBILITIES

7.2.1 Tank Waste Operations

Tank Waste Operations is responsible for managing 177 underground storage tanks (149 SSTs and 28 DSTs) in a safe and efficient manner that ensures compliance with DOE orders and Federal, state, and local laws and regulations and achieves the mission goals and objectives of DOE, FDH, and the SST IS Project. The DST and SST shift managers are responsible for the safe execution of field activities. The shift managers report directly to the DST and SST Operations facility managers, who report to the director of Tank Waste Operations.

Specifically, Tank Waste Operations is responsible for the safe handling, separation, storage, and monitoring of highly radioactive liquid waste stored in the underground tanks. Radioactive liquid wastes are received for interim storage into the DST system by truck, rail car, or transfer lines from external sources such as B Plant, Plutonium Finishing Plant, and 222-S Laboratory. Liquid wastes are staged as feed for 242-A Evaporator campaigns to conserve DST space through waste volume reduction. The 242-A Evaporator output slurries are returned to the DST system for interim storage.

Tank Waste Operations maintains a standard of performance for formal conduct of operations, maintenance, and radiological control by its personnel in accordance with the approved tank farm and evaporator standards and requirements identification documents (S/RID). Surveillance activities necessary to support the safe storage mission, including SST IS, are performed using approved procedures. Specific responsibilities include the operations required to retrieve and transfer waste to the evaporator for waste-volume reduction.

7.2.2 Single-Shell Tank Interim Stabilization Project

The SST IS Project Operation organization is responsible for managing assigned facilities, equipment, and activities in a safe and efficient manner that ensures compliance with DOE orders and Federal, state, and local laws and regulations and achieves the mission goals and objective of the SST IS Project.

Specifically, the SST IS Project Operations is responsible for safe removal (transfer) and monitoring of the pumpable supernatant and interstitial liquid from the remaining 29 SSTs into the DST system. These activities include equipment design, procurement, installation, maintenance and, after pumping has been completed, equipment removal. The SST IS Project Operations is also responsible for performing instrusion prevention activities such as disconnecting, blanking, or capping pipelines from tank systems and installing barriers to avoid inadvertent liquid addition into interim-stabilized SSTs.

Figure 7-1. LMHC/Tank Waste Remediation System Organization

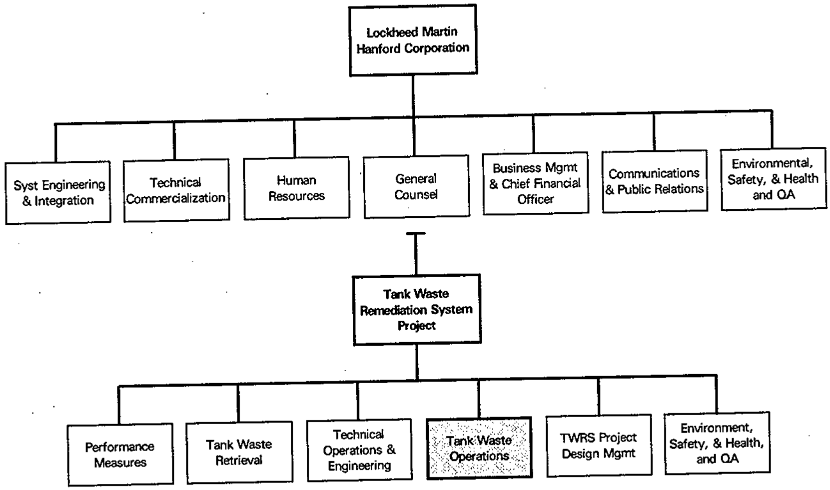


Figure 7-2. Tank Waste Operations

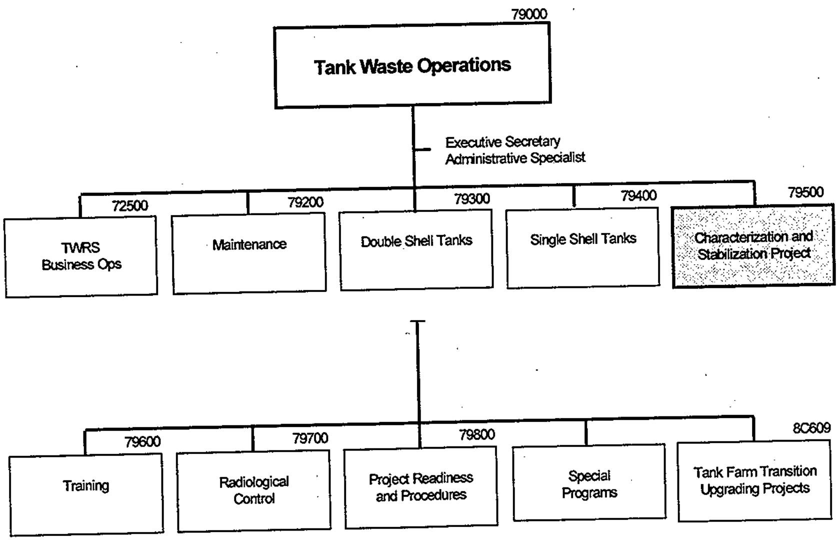


Figure 7-3. Characterization Project Organization

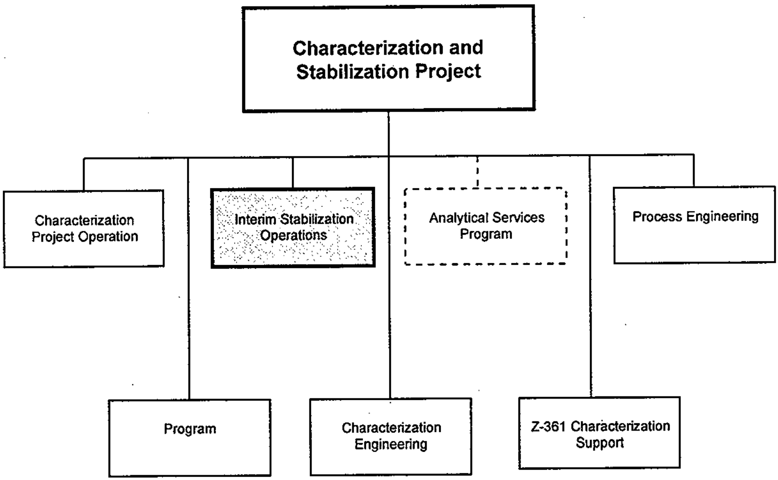
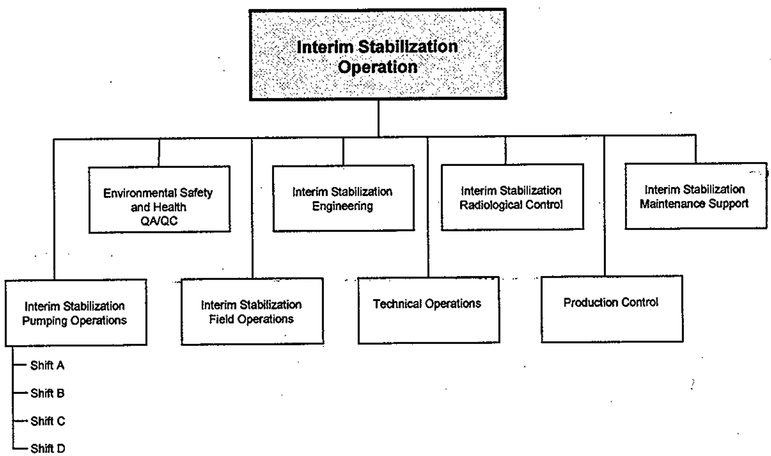


Figure 7-4. Interim Stabilization Project Organization



8.0 MANAGEMENT APPROACH

Overall management of the growth of both field and budget activities requires the establishment of a structured and disciplined management process. Rigorous adherence to basic business management rules begins with well-defined work logics and a solid estimating basis. This plan establishes those elements of our baseline. This section discusses the management approach for execution and evolution of the project baseline.

8.1 BUSINESS OPERATIONS

Business operations includes those principal activities necessary to establish and maintain the SST IS Project project baseline. These activities include planning for, and providing input to, the mission scope and providing for schedule development, cost estimating, acquisition management, and performance monitoring.

8.1.1 Project Baseline Development

The integrated baseline development process is identified in Section 6.1. That is, the physical configuration and operational requirements defined in the technical baseline drive the WBS, work definition, Level 1 Logics, supporting critical-path analyses, and baseline schedules. Once the work definition is validated from a technical and schedule standpoint, detailed schedules are developed and activities are resource loaded. Adjustments then are made to level the resources and meet schedule and budget constraints imposed on the project. The final scope, schedule, and supporting cost estimates constitute the SST IS Project baseline and serve as the basis for developing the MYWP (LMHC 1997b) and reporting execution-year performance.

Development of this project baseline is a mature iterative process that considers customer needs, determines organization priorities, defines technical approaches, establishes schedules, and develops annual budgets. This annual process refines execution year planning and further refines and validates the technical baseline and the outyear planning (including budgets).

In preparation for each upcoming fiscal year, a baseline record file is prepared and kept in the Business Management offices. This record file includes a copy of the approved, signed cost account plan (CAP); a copy of the approved, signed cost account authorization (CAA); the Level 8 task risk analysis sheet, the baseline target schedule for that cost account; and a copy of the performance agreement associated with that account (if applicable). This file is designated the "FY 1998 Project Management Plan" and is identified by the particular cost account number. It is used for all baseline inquiries and serves as an essential reference document in the Stabilization Program for FY 1998.

8.1.1.1. Work Scope. The general work description for the SST IS Project scope is established in SST IS Level 1 Logics in Appendix E. These logics are enhanced program evaluation and review techniques charts depicting, in a box and line format, the major activities, their relationships and dependencies, predecessor and successor activities, and projected start/end dates and durations. The logics are derived from the Level 0 Logics for the TWRS Project and other SST IS Project-related work logics. The logics are developed and maintained in a computer-based project-planning system referred to as the P3. Input to, and modification of, the P3 database is subject to configuration control, ensuring that the SST IS Project scope cannot be altered without the authorization of appropriate managers.

Activity boxes in the SST IS Project Level 1 Logics are further broken down into sets of logically linked tasks. These tasks are defined at a sufficiently low level to support defendable analyses of the duration and cost of each task. Technical basis reports are generated for each Level 1 Logic activity. These reports provide background summaries and identify enabling assumptions; responsible organizations; technical contacts for activities; interfaces and linkages to other activities; predecessor and successor activities; risks; and other information necessary to describe the essential attributes of each activity and its supporting tasks. The technical basis reports are subject to configuration control.

The SST IS logics; technical basis reports; and the lists of requirements, enabling assumptions, risks, decisions, approved technical baseline documents, and annual DOE guidance all are used to develop annual SST IS mission plans. These plans describe the purpose, objectives, and scope of work for each task, and the plans are aligned to correspond with the WBS work activities. Each plan includes specific activities to be implemented, work products and deliverables required, customer and quality expectations for the work, work product dependencies, product interface agreements, and key assumptions that are necessary for the work to proceed. The plans establish schedules for work product delivery consistent with project schedules. Finally, the plans identify resource needs (estimated by discipline and type) and estimated costs based on these projected resource needs. Once resources are agreed to by the responsible project managers, the plans are subject to configuration control.

8.1.1.2. Schedule. The baseline schedule for the SST IS Project is derived by integrating the detailed work schedules identified in the individual plans. The work schedules are reviewed and adapted as needed to ensure consistency with direction and guidance from RL and FDH on preparing the annual MYWP. The SST IS mission schedules are aligned with the WBS and are subsequently integrated into the TWRS MYWP (LMHC 1997b).

8.1.1.3. Cost. A primary SST IS Project objective is achieving cost-effectiveness throughout its life cycle while meeting or exceeding technical and schedule objectives. Toward this end, the SST IS Project has implemented a streamlined management system and will continue to improve productivity and optimize resources. Risk assessments will be incorporated into project decisions. Activity-based cost estimating will be used to ensure appropriate evaluation of work scope, schedule, cost, and business risk. Estimating commitments serves as the basis for establishing budgets and ultimately as the basis for performance measurement. The pricing rates and factors used to support the budget planning process are directed by FDH. Changes to these rates and factors will be addressed through the formal change-control process.

The SST IS Project Manager will ensure that cost estimates and revised estimates are based on current plans and work authorizations and that the basis for cost estimates is consistent with the documented project scope and schedule baselines. Periodic reviews will be conducted on the financial status and variance reports prepared by Business Management. Based on review of these reports, responsible management will identify workarounds or other actions that may be required to eliminate variances or mitigate the impact of such variances.

Each month, a briefing is held with senior management to status the schedule cost, performance, and variances of the previous month. SST IS accomplishments, issues, concerns, impacts, corrective measures, and milestone are also reviewed. The briefing concludes with a three-month lookahead. These status meetings have proven to be essential to the success of the integration of the Stabilization Project with all other SST operations and project support functions. Reports are issued following these monthly meetings and provide essential data to the cost account managers and the TWRS managers to ensure that they have update at hand for all cost accounts, schedules, and ongoing commitments.

8.1.2 Acquisition Management

The process used to authorize and fund TWRS Project activities is summarized in HNF-1883, Section 9.1.2, "Acquisition Management" (Freeman 1998) and detailed in subordinate procedures. The following briefly describes this process as it relates to the SST IS Project.

8.1.2.1. Work Authorization. TWRS tank farm work and the SST IS Project work are authorized by division directors/Project Baseline Summary managers at WBS Level 5 (activity) through use of sub-operations directives. These Project Baseline Summary managers/Activity managers then authorize work at WBS Level 6 (cost account) through the use of CAA forms. These CAA forms are prepared and approved at the beginning of each fiscal year and retained in the project-management-plan cost-account records, kept in the Business Management offices.

At each level (activity, cost account, etc.), the assigned managers are vested with the responsibility and authority for satisfactory performance and completion of assigned work within defined schedule, cost, and regulatory constraints. Cost-account managers issue documentation that defines work at the cost-account level, work-package level, and associated task-package level.

8.1.2.2. Subcontracting. The cost-account manager determines the work scope to be subcontracted when offsite support is required in accomplishing the particular cost account, work package, or task. The cost-account manager is also responsible for developing any required task orders, specifications, statements of work, and/or acceptance criteria. LMHC Contracts and Procurement supports the cost-account manager in developing a request for proposal and for other functions.

The major equipment will be procured and fabricated by offsite vendors. This includes approximately six exhausters (~$500,000 each), 25 flammable gas monitors (~$70,000 each), and four pump instrumentation control skids (~$150,000 each). It is anticipated that a single purchase order will be issued for each of the three types of equipment. The deliveries will be staged to support the IS schedule. The purchase orders will specify progress payments that are tied to vendor procurement activities and deliveries of the equipment.

8.1.3 Performance Assurance

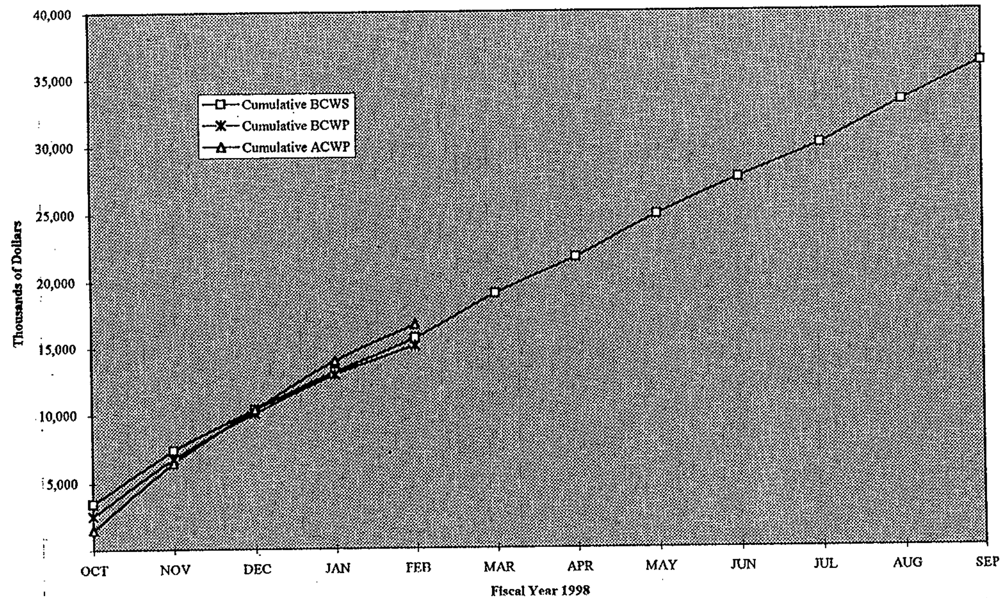
8.1.3.1. Performance Measurement and Reporting. Performance measures are developed at all management levels (activity, cost account, etc.) and are aimed at achieving best-in-class performance in cost, schedule, quality, and workforce productivity. Performance versus plan is measured, and performance variances are monitored and controlled. Recovery plans are developed by the responsible manager for variances that exceed identified threshold tolerances. Performance measurement is also used to develop trends and predict future performance. Responsible managers will monitor performance of internal support service personnel and resolve noted deficiencies with the appropriate support-service managers. The responsible managers also have the authority to reject erroneous costs charged to their work accounts.

Table 8-1 identifies the minimum levels of performance reporting. Reporting at a more detailed level will be at the discretion of the responsible manager. Performance metrics will additionally be developed for each cost account and reported to project managers monthly.

Table 8-1. Work Breakdown Structure Performance Reporting Levels.

Work Breakdown Structure Reporting Level	Tank Waste Remediation System Project				
	Cost Account Manager	Project Manager	Division Director	Executive Management	Fluor Daniel Hanford, Inc. Project Direction
4 Project Baseline Summary	✔	✔	✔	✔	✔
5 Activity	✔	✔	✔		
6 Cost Account	✔	✔			
7 Work Package	✔				
8 Task	✔				

Performance measures are reflected each month, based on the actual costs and performance reported in the financial system. Figure 8-1 is an example of the SST activities, and identifies budgeted cost of work scheduled, budgeted cost of work performed, and actual cost of work



	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Cumulative BCWS	3,459	7,359	10,361	13,141	15,655	18,981	21,664	24,801	27,513	30,009	33,177	36,045
Cumulative BCWP	2,544	6,757	10,064	12,925	15,103							
Cumulative ACWP	1,497	6,441	10,370	13,991	16,668							
Cumulative SCH Variance	(915)	(602)	(297)	(216)	(552)							
Cumulative Cost Variance	1,047	316	(306)	(1,066)	(1,565)							

Figure 8-1. Example of Single-Shell Tank Activities and Costs.

performed. Performance is also measured through the use of numerous metrics including, but not limited to, budget/cost profile, cost performance, staffing, and overtime.

8.1.3.2. Continuous Process Improvement. The SST IS Project quality policy commits all organizations to the principle of continuous process improvement. Process improvement is achieved when key processes are well understood and regularly examined for improvement opportunities. Each SST IS manager is required to plan, schedule, and conduct assessments of their management systems and processes. The HNF-IP-0842, *Tank Waste Remediation System Administration*, Volume XI, "Quality Assurance," Section 1.1, "TWRS Quality Assurance Project Plan" (LMHC 1997a) identifies implementing procedures for management assessment and other evaluative processes. The TWRS Quality Assurance organization provides oversight of the SST IS Project self-assessment processes. In addition, SST IS Project facilities are regularly reviewed by the PHMC Facility Evaluation Board, as well as by other organizations external to TWRS.

8.1.4 Management Systems

The following sections describe the information resource management and decision modeling systems and tools in use by the SST IS Project. Other key systems and processes are described in the remainder of Section 8.0.

8.1.4.1. Information Resource Management Systems. Much of the success of the SST IS Project management approach will rely on the ability to acquire and analyze management information. Currently the SST IS Project uses several sitewide (e.g., Financial Data System, P3, Job Control System) and in-house systems (e.g., Process Monitoring and Control Systems) to manage information. Most of these systems are standalone systems that need improvements in integration and data sharing to be effective management tools.

The SST IS Project will use the PHMC Hanford Data Integration 2000 System (HANDI 2000) to assist in its management processes. The FDH HANDI 2000 Project, described in HNF-1743, *HANDI 2000 Project Execution Plan* (FDH 1997a), will integrate the major Hanford Site business processes and their supporting information systems. It will establish industry-standard work processes through business process enhancement and implementation of a set of integrated, commercial off-the-shelf enterprise resource planning software products. This integration system will reduce costs, provide better control, reduce the risk of nonconformance, improve safety, improve productivity, and improve overall process integrity.

The core business processes that HANDI 2000 will address are project management; financial management; supply management; human resources; Environmental, Safety, and Health (ES&H); and work management. Current plans are to implement these processes sitewide, with the exception of work management, by FY 2000. Work management has not received sitewide implementation approval; it is expected to be piloted by the SST IS Project in FY 1998 and implemented thereafter.

8.1.4.2. Decision Models. The SST IS Project uses process models and analysis tools to assist in decision-making processes. The most popular of these models is the scheduling and resource planning tools for project planning, particularly the P3 application, that will produce schedules with logic ties defining interdependence of the activities. These tools help ensure that the resources are available to perform timely work.

8.2 ENGINEERING

The engineering process applied to the SST IS Project uses a systems approach. This process ensures that the technical baseline supports the identified mission needs and requirements. In this process the requirements are determined; the system is assessed; the existing technical baseline is verified; new hardware is designed, constructed/procured, installed, tested; and operations and maintenance are supported.

The engineering approach takes into account the fact that a majority of the SST IS Project system already exists and modifications and maintenance to support the SST IS mission are under way. The existing system and these ongoing activities are being assessed to ensure that they will perform the required functions and meet performance requirements. The systems engineering focus is on developing the functions, requirements, concepts, and integration of activities, whereas the engineering focus is on the existing technical baseline/system, design/construct/test, and operations and maintenance support.

8.2.1 Systems Engineering

Systems engineering is the fundamental tool for understanding and developing complexed systems throughout their life cycle. The systems engineering process is described in HNF-SD-WM-SEMP-002, Rev. 1, *TWRS Systems Engineering Management Plan* (Peck 1998) and the implementing procedures contained in HNF-IP-0842, *TWRS Administration* (LMHC 1997a). This engineering process has been implemented on the SST IS Project.

The top-level elements of this process include a mission analysis and definition of an operations and maintenance concept for the SST IS Project. The SST IS mission has been analyzed with a particular focus on identifying the requirements associated with top-level functions, major facilities, the Authorization Basis, regulations and DOE orders, records of decisions, and the Tri-Party Agreement (Ecology et al. 1996).

The existing facilities and ongoing projects are being assessed to determine the applicability of existing systems/components and to identify any new systems/components that need to be deployed and the requirements for documentation (e.g., new specifications or updates of existing functional design criteria). Technical performance measures are being established, based on the specifications and risk evaluations, to gain insight into the evolving capability of the system and to manage risk. Test and evaluation will be planned and conducted as required to verify that the systems and components meet the specified requirements and support integration.

8.2.2 Engineering Process

The engineering process is documented in HNF-1947, *Tank Waste Remediation System Engineering Plan* (Rifaey 1998). This plan describes the engineering process and the controls being put in place to support the technical baseline definition and to manage its control, evolution, and implementation to field operations. The engineering plan provides the vision for the engineering required to support the SST IS mission, which includes integrated data management of the technical baseline. Further, this plan describes the approach for moving from the "as-is" condition of engineering practice, systems, and facilities to the desired "to-be" configuration.

The systems engineering process described in Section 8.2.1 is an integral part of the overall engineering process. Existing systems are analyzed to ensure that their functionality and operability will meet mission needs and system specifications. New systems are defined through alternative generation analysis, trade studies, engineering studies, and specialty engineering analysis against the requirements and projects defined. Conceptual designs are generated and project baselines established. Technical authorities (design authorities and cognizant engineers) direct this process once the formal assessment/evaluation ensures the need for new or modified hardware. Design, construction, and testing activities follow conceptual design. The Engineering organization supports Operations and Maintenance by managing technical information (e.g., drawings, analysis, vendor information, and equipment).

8.2.3 Technical Baseline

The technical baseline generated by this process is summarized in Section 6.0.

8.2.4 Alternatives Management

Alternatives management generally can be categorized into three major areas:

- Evaluation of technical alternatives for processes, system designs and specifications, and equipment selection
- Contingency planning
- Identification and development of optimization opportunities.

Technical alternatives are evaluated in accordance with alternatives generation and analysis practices described in the *TWRS Systems Engineering Management Plan* (Peck 1998). The various existing alternatives generation and analysis studies and those that are planned in support of the SST IS Project are described in Section 6.0. An analysis of the alternatives and technology considered is included in Appendix B.

8.3 INTEGRATED SAFETY MANAGEMENT SYSTEM

The objective of an Integrated Safety Management System (ISMS) is to facilitate *safe work*. The TWRS organization is committed to performing work safely and efficiently and in a manner that ensures protection of the public, workers, and environment. The management of safety functions and activities is an integral aspect of the TWRS Project and is accomplished through integration of safety management into all facets of work planning and execution. The ISMS establishes one ES&H management system that integrates requirements into work planning and execution and identifies requirements reflecting DOE's commitment to a "standards-based" safety program and the safety concepts.

The ISMS provides the mechanism for increased worker involvement in work planning (including hazard and environmental impact identification), analysis and control, and feedback/ improvement processes. Effective implementation of the ISMS incorporates the best practices of, and supports the accomplishment of, the Voluntary Protection Program, the enhanced work planning/Hanford occupational health process, and other similar ES&H improvement initiatives.

HNF-1883, Section 9.3, "Integrated Safety Management System," (Freeman 1998) provides additional detail on ISMS objectives and the roles and responsibilities of the integrated organizations supporting this effort. The following sections summarize this detail and describe the relevance to the SST IS Project.

8.3.1 Tank Waste Remediation System Safety Organizations

The TWRS Environmental, Safety, and Health, and Quality Assurance (ESH&QA) organization, TWRS Radiological Control, and TWRS Engineering and Nuclear Safety (TENS) provide health and safety services to the TWRS Project. These organizations use the ISMS to integrate safety and health functions into work planning, execution, and follow-up. Programs are in place to oversee implementation of DOE orders and Federal, state, and local laws and regulations; perform audits to verify compliance with regulatory and legal operational requirements; and provide guidance and policy direction for continuous improvement in the conduct of work.

8.3.1.1. Tank Waste Remediation System Environmental, Safety, and Health, and Quality Assurance.

- **Environmental.** The Environmental Program facilitates TWRS Project compliance by definition and oversight of environmental regulatory requirements. Stabilization activities are components of the Tri-Party Agreement (Ecology et al. 1996) under M-41. The unit processes of stabilization are evaluated to determine permitting requirements. The HNF-1773, *Tank Waste Remediation System Environmental Program Plan* (Borneman 1998), provides additional detail on the Environmental Program processes, roles, and responsibilities.

- **Safety and Health.** TWRS Safety is a multidisciplined organization encompassing Industrial Safety, Industrial Hygiene, and Fire Protection. The Safety program is implemented through numerous Project Hanford Policies and Procedures for Occupational Safety and Health and Fire Protection; HNF-SD-WM-HSP-002, *Tank Farm Health and Safety Plan* (Mickle 1995); HNF-IP-0842, Volume IX, Section 1.1, "TWRS Safety Program Plan" (Freeman 1998); and TWRS-specific administrative and quality procedures. Stabilization activities are covered by these procedures. Safety is integrated through the work planning process and the safety oversight function.

- **Quality Assurance.** The TWRS Project contractor implements its quality assurance program through HNF-IP-0842, Volume XI, Section 1.1, "TWRS Quality Assurance Program Plan (QAPP)" (LMHC 1997a) and the Quality Assurance organization. An implementation matrix in the QAPP summarizes flowdown of requirements to procedures. The procedures control the quality assurance process for the entire TWRS Project. The QAPP is reviewed/revised annually to accommodate changes in requirements, activities, organization, or facilities. Stabilization activities fall under the QAPP and subordinate procedures.

- **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 TWRS TENS organization is responsible for performing the engineering and nuclear safety analyses to support this objective. The ESH&QA organization is responsible for the oversight of these analyses and review of the documents produced. This relationship ensures that the integrity of an independent technical review is preserved. Communication ensures that the roles between the two groups are clearly defined and that duplication of work is avoided. Stabilization activities and work are evaluated in the same manner as all TWRS activities to ensure that the Authorization Basis requirements are met.

- **Emergency Preparedness.** The Emergency Preparedness (EP) Program is an integral element of the ISMS; the EP program is described in WHC-IP-0971, *Tank Waste Remediation System Emergency Preparedness Program Plan* (Rowland 1996). The TWRS EP organization works in conjunction with the sitewide EP organization, which includes RL and Project Hanford Management team subcontractors. The TWRS Project facility-specific requirements are identified and implemented by TWRS EP. Stabilization activities fall under the oversight of TWRS EP; these activities are covered by the current hazards assessment.

8.3.1.2. Radiological Control. The Radiological Control organization integrates safety and health functions into all phases of the TWRS Project. The HSRCM-1 (1994), *Hanford Site Radiological Control Manual*, outlines the compliance program for 10 CFR 835, "Occupational

Radiation Protection." The Radiological Control organization implements this program through support and oversight of TWRS Project work, including the SST IS Project activities. This effort involves the generation of radiation work permits for relevant work and the assignment of radiological control technicians as appropriate.

8.3.1.3. Tank Waste Remediation System Engineering and Nuclear Safety and Licensing. For the TWRS Project, the nuclear safety activities are executed by the Nuclear Safety and Licensing organization, reporting to the TENS Director. This functional support group ensures consistency across all aspects of the TWRS Project in terms of hazard identification, control development, Structures, systems, and components specification, Authorization Basis document preparation, DOE order compliance, and approaches to dealing with technical uncertainty. Stabilization activities are evaluated for compliance with the Authorization Basis and other requirements through applicable TWRS procedures.

8.4 DECISION MANAGEMENT

Decision management provides traceability for affected decisions through the graded use of a rigorous and methodical decision-making process. The SST IS Project management process implements the requirements of HNF-IP-0842, Volume IV, Section 1.1, "TWRS Systems Engineering Management Policy" (LHMC 1997a); *TWRS Systems Engineering Management Plan* (Peck 1998); and WHC-IP-0842, Volume IV, Section 2.7, "TWRS Decision Management Procedure" (LMHC 1997a). In accordance with these references, a fully implemented decision management process will be followed for major SST IS mission decisions.

A graded approach to implementing this process is allowed for decisions of lesser impact. It is the responsibility of the designated decision maker to determine the degree to which the full decision management process is applied to individual decisions. In such cases, SST IS Project management will refer to HNF-IP-0842, Volume IV, Section 2.7, "TWRS Decision Management Procedure" (LMHC 1997a) for specific guidance.

8.5 RISK MANAGEMENT

The SST IS Project has implemented a disciplined approach to project risk management to ensure that risks are identified and managed in a manner that eliminates or satisfactorily mitigates their impact. Risk evaluation activities are embedded in the SST IS Project management processes and constitute a fundamental input to decision-making processes.

The SST IS Project risk management process is intended to reduce these risks to an acceptable level through a process of risk assessment, analysis, and handling. It is also intended that risks be communicated to the appropriate decisions makers. The SST IS Project risk management project is based on the requirements of HNF-IP-0842, Volume IV, Section 1.1, *TWRS Systems Engineering Management Policy* (LMHC 1997a), and the *TWRS Systems Engineering Management Plan* (Peck 1998). These requirements cover risk assessment, risk analysis, and risk handling.

The SST IS Project will implement these requirements through HNF-IP-0842, Volume IV, Section 2.6, *TWRS Project Risk Management Procedure* (LMHC 1997a); HNF-SD-WM-PMP-018, *Tank Waste Remediation System Risk Management Plan* (Zimmerman 1998); and risk management implementation plans, as required. In response to this guidance, the SST IS Project will perform the following:

- Identify and analyze potential technical, schedule, and cost risks for activities
- Develop and maintain risk management lists identifying the risks, their possible consequences, a measure of their relative importance, and the planned mitigation actions
- Control and track completion of assigned risk management mitigation activities
- Communicate risk project status through rollup of risks to the appropriate management levels and cross communication with the appropriate client counterparts at each level.

The SST IS Project technical basis review documentation (refer to Section 6.1) and the Single-Shell Tank Interim Stabilization Critical Risk Management List in Appendix B are the principal management tools used to identify, analyze, and track project risks and their related issues. Technical basis review documents are developed for each key activity identified on the SST IS Project Level 1 Logics in Appendix E and incorporate an assessment of technical, schedule, and cost risks relating to that activity. Risk lists are used to compile, communicate, and track risks and actions taken to mitigate such risks.

8.6 CONFIGURATION MANAGEMENT

Configuration management is an integrated approach to controlling the technical, cost, schedule, and administrative information necessary to manage the SST IS Project activities. It supports management of the SST IS Project baseline (technical and contractual) by providing the mechanisms to identify, document, and control the functional and physical characteristics of the SST IS Project products, particularly as changes are being made.

Configuration management focuses on five principal functions: configuration management system management, configuration identification, configuration status accounting, change control, and configuration management assessments. Application of these functions is tailored to project requirements, and objectives remain the same throughout the project life cycle: identify configuration items, identify configuration information to be controlled for each item, and control that information. Critical to this process is identifying the as-built configuration of project structures, systems, and components; the change control thresholds for modifying this configuration; and the level of authority required for such changes.

The TWRS configuration management policy and requirements are defined and described in HNF-1900, *Tank Waste Remediation System Configuration Management Plan* (Vann et al. 1998). The implementation process and mechanisms used to establish and maintain configuration control are also described in HNF-1900. Specific mechanisms and requirements are addressed in detail by TWRS procedures referenced by HNF-1900. Additional actions being taken to improve the implementation of configuration management are identified in HNF-SD-WM-CM-014, Rev. C (Vann 1998).

Tank Waste Operations has appointed a Tank Waste Operations configuration management representative, who is responsible for identifying configuration items and configuration information, including this data in the TWRS configuration program, and maintaining its traceability and consistency with source requirements. This effort covers the configuration management requirements for all activities within Tank Waste Operations including those of the SST IS Project.

8.7 INTERFACE MANAGEMENT

A major objective of interface management and control is to form agreements that allow organizations to design adjoining physical systems. Proper application of interface management and control processes result in structures, systems, and components that physically fit and function together without mismatch, omission, interferences, or disposition. Interface management and control also must be imposed when an organizational interface is identified. Typically, identified interfaces are to other internal TWRS projects (e.g., Waste Retrieval and Disposal, DST Operations, or Characterization) or to external projects (e.g., Waste Management Project in the case of 242-A Evaporator Operation).

The requirement that a project's interfaces be identified, controlled, and integrated with other projects and activities is found in WHC-SD-WM-SEMP-002, *TWRS Systems Engineering Management Plan* (Peck 1998) and WHC-IP-0842, Volume IV, Section 2.8, "Interface Control" (LMHC 1997a).

The SST IS Project interfaces primarily will be documented and controlled by the MYWP (LMHC 1997b) and other supporting documents such as the HNF-SD-WM-ER-029, *Operations Waste Volume Projection (OWVP)* (Strode and Boyles 1997). The Waste Management Project uses the OWVP as the basis for its planning. Where required, the SST IS Project will establish formal agreements with the performing organization (e.g., Waste Management Project on the availability of the 242-A Evaporator to process accumulated liquid waste in the DSTs). Performance against interface requirements will be monitored. The following key interfaces affect the SST IS Project.

The SST IS Project interfaces are listed in Table 8-2 below and described in Section 2.4.

Table 8-2. Single-Shell Tank Interim Stabilization Interfaces.

Programmatic	**Internal Interfaces**
1. DOE-RL	1. Waste Characterization
2. Tank Waste Operations	2. Safety Issue Resolution
3. Evaporator Operations	3. Nuclear Safety and Licensing
4. Waste Characterization	4. TWRS Environmental
5. TWR Construction Projects	5. Tank Waste Operations
6. TWR Operations	6. TWRS Management
	7. Process Engineering
Physical Interfaces	
1. Tank Waste Operations	

DOE-RL = U.S. Department of Energy, Richland Operations Office.
SST = single-shell tank.
TWR = Tank Waste Retrieval.
TWRS = Tank Waste Remediation System.

Management of the above interfaces is coordinated through conduct of monthly, at a minimum, meetings with the affected parties. The purpose of these meetings is to provide information on activities to all affected organizations, to discuss issues and conflicts, and to resolve any interface problems that may arise.

A DST Waste Inventory Control group meeting is conducted monthly. The charter of this group will be expanded to include Surveillance, TWRS Safe Storage Operations, and SS IS Project statusing. The Waste Inventory Control group discusses waste transfers, waste volume projections, saltwell pumping schedules, evaporator campaigns, construction project interferences, and privatization issues. Action items from prior meetings are discussed and closed as applicable. New action items are identified and documented in meeting minutes.

The charter for the Waste Inventory Control group is documented in HNF-IP-0842, Volume I, Section 3.12 "Tank Farm Administration Manual" (LMHC 1997a).

8.8 STAKEHOLDER AFFAIRS

8.8.1 Regulator Participation

RL has requested regular meetings with the PHMC Team in which the Washington Department of Ecology would be included, to discuss Stabilization issues. Such meetings are being planned and coordinated through the FDH TWRS Project Direction Office. Any other requests from RL will be handled through FDH as well.

8.8.2 Public Participation

Any public participation will be handled per the HNF-MP-012, *Integrated Hanford Communications Plan* (FDH 1997b) submitted by FDH to DOE. It identifies key Hanford Site stakeholders and provides a framework for integrated communications and public involvement for the Hanford Site. The LMHC and FDH support RL in the communication of the TWRS Project activities to stakeholders, tribes, and other interested parties.

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9.0 REFERENCES

Act

Resource Conservation and Recovery Act of 1976.

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APPENDIX A

INTERIM STABILIZATION HISTORY

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APPENDIX A

INTERIM STABILIZATION HISTORY

Introduction

The U.S. Department of Energy (DOE) has shifted its main objective from production of special nuclear material to cleanup of facilities and restoration of its manufacturing sites. With approximately 50 years of spent nuclear material production at the Hanford Site, large volumes of liquid waste by-products that consist of radioactive and toxic chemical mixtures have accumulated. Liquid wastes are stored in large underground waste storage tanks that are clustered in rectangular arrays identified as tank farms. The tank farms are located in the 200 West and 200 East Areas of the Hanford Site.

Between 1943 and 1964, 149 single-shell tanks (SST) were designed and constructed in the 200 Areas. Wastes were added to these tanks from 1943 until November 1980. Each of the 12 tank farms contains from 4 to 18 SSTs. To provide additional space and to eliminate the potential for tank leakage to the vadose zone, a double-shell tank (DST) construction program commenced in 1968.

To limit the number of new DSTs that had to be constructed to store liquid radioactive waste, DOE authorized concentration of the waste liquids until the soluble salts were precipitated. These precipitated salts were allowed to settle in the SSTs. Significant free supernatants were pumped from most of the SSTs by 1980, concentrated, and then stored in DSTs. No new waste additions were made to the SSTs after 1980. However, the SSTs have seen severe service and are well beyond their design life. Leakage of waste from 67 of the SSTs has been assumed or confirmed.

To reduce the potential of further leakage, an approach was developed using a central screen well and a low-capacity jet pump was installed in the well to remove the drainable liquid. Liquid in the tank drains to this central well, driven by the pressure of the interstitial liquid in the bed (head height). To maximize the rate of drainage at all times, the liquid in the well is maintained at the lowest possible level. Operation in this manner ensures that the maximum drainable liquid is removed as quickly as possible. This process has been defined as "interim stabilization."

The solids remaining in the SSTs consist of porous beds, with the interstices filled with the remaining radioactive waste liquids. Depending on the particle sizes of the solid beds, varying amounts of liquid are trapped in the solids beds. For beds with relatively large particle sizes, the resultant capillary potential of the bed is low, and much of the interstitial liquid can drain or leak. For very fine particles, the capillary potential is very high, and little of the interstitial liquid can drain or leak. On average, 3.79 liters (1 gallon) of salt cake may contain 1.26 liters to 2.53 liters (1/3 to 2/3 of a gallon) of drainable liquid, while 3.79 liters (1 gallon) of sludge may contain 0.379 liter to 0.95 liter (1/10 to 1/4 of a gallon) of drainable liquid.

Therefore, the time to remove interstitial liquid can be as much as several years, depending on solution properties, solids porosity, surface tension on the liquid on the wetted solids, head height, well diameter, and solution viscosity. Pumping generally continues until the inflow into the central well is 3.2×10^{-3} liter per second (0.05 gallon per minutes, less than 1 cup per minute). Flush water needed to keep the pump and screen clear exceeds the 3.2×10^{-3} liter per second (0.05 gallon per minute) criterion, so continuing to pump would only result in removing the water added to the system, rather than continuing to remove liquid waste from the solids.

Prototypical operation of saltwells began in 1976 and continued intermittently through 1978. A larger scale commitment to install and operate saltwells began in 1979.

Interim Stabilization

Of the 149 SSTs, 119 have been interim stabilized. This includes removal of pumpable liquids in accordance with the identified criteria, concentration of the liquid through evaporation, and transfer of the concentrate to DSTs. This interim stabilization step was taken to mitigate the consequences of a leaking tank. Each of the 30 SSTs awaiting interim stabilization contains between 174,100 liters (46,000 gallons) and 3,607,000 liters (953,000 gallons) of waste, much of which is pumpable liquid. Figure A-1 reflects the number of tanks pumped per year. Figure A-2 reflects the volume pumped per year.

Based on the design life, the severe service, and the number of tanks currently identified as assumed or confirmed leakers, there is no technical or engineering reason to believe that the tanks remaining to be interim stabilized will not fail in the future. Therefore, the remaining 30 tanks will be interim stabilized to minimize future leak potential and as an integral part of the ongoing DOE cleanup objective.

Interim stabilization of the SSTs is a DOE objective and a critical step in the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1996). Stabilization is required to support retrieval and ultimate waste disposal objectives; with the likely possibility of tank failure, the goal is to minimize the impact on the environment by sequentially stabilizing the tanks.

End-point criteria for interim stabilization of SSTs are reached when all of the following are achieved:

1. Each tank contains less than 189,200 liters (50,000 gallons) of drainable interstitial liquid, based on either a 45 percent porosity or the porosity determined during actual pumping

2. Each tank contains less than 18,920 liters (5,000 gallons) of supernatant (the liquid above the solids in waste storage tanks)

3. If a 3.2×10^{-3} liter per minute (0.05 gallon per minute) or less pumping rate has

been reached or if inflow in the saltwell screen is less than 3.2 x 10^{-3} liter per second (0.05 gallon per minute) and each tank has less than 189,200 liters (50,000 gallons) of drainable interstitial liquid.

Intrusion Prevention (Interim Isolation)

The Tri-Party Agreement (Ecology et al. 1996) defines intrusion prevention (interim isolation) as disconnecting and blanking or capping pipelines from tank systems and installing barriers to avoid inadvertent liquid addition. Intrusion prevention is complete when the necessary system components are sealed to prevent tank intrusion. Required tank surveillance instrumentation devices are not disconnected or disabled during the intrusion prevention process.

End-point criteria for intrusion prevention of SSTs are reached when all of the following are achieved:

1. Risers terminating above grade or less than 0.91 meter (3 feet) below grade are sealed
2. Confinement cover for pits, cells, vaults, etc., are sealed for tanks that have risers terminating in a confined area
3. Pipelines entering any tank or abovegrade structure connected to a tank are sealed with closure devices.

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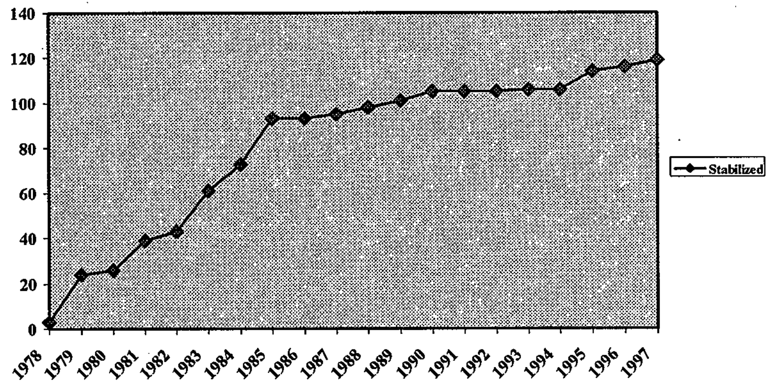
119 Stabilized Tanks



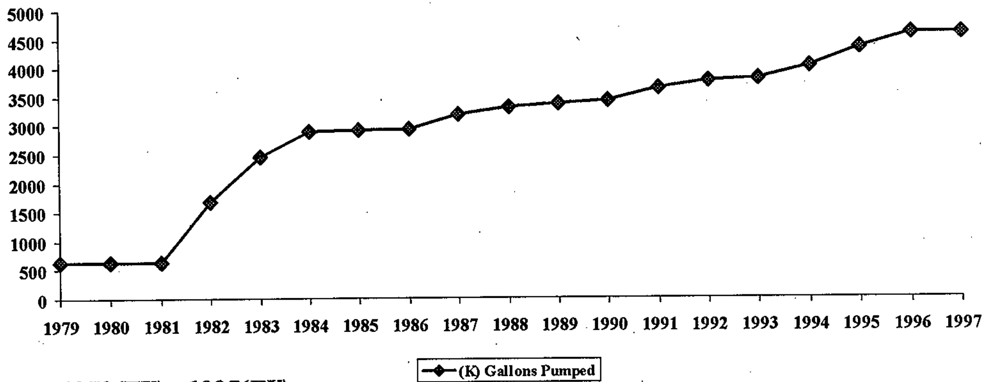
1978(FY) - 1997(FY)
119 Stabilized Tanks

Fiscal Year	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Number of Tanks Stabilized	3	21	2	13	4	18	12	20	0	2

Fiscal Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Number of Tanks Stabilized	3	3	4	0	0	1	0	8	2	3

Figure A-1. Interim 119 Stabilized Tanks.

Gallons Pumped Per Fiscal Year (1979 - 1997)



1979(FY) - 1997(FY)
4,648 (K) Gallons Pumped

Fiscal Year	1979	1980	1981	1982	1983	1984	1985	1986	1987
Gallons (K) Pumped	627	0	0	1,048	777	445	7	16	264

Fiscal Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Gallons (K) Pumped	119	72	44	227	121	37	221	317	240	66

Figure A-2. Gallons Pumped Per Fiscal Year.

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APPENDIX B

ALTERNATIVES AND TECHNOLOGY CONSIDERED

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APPENDIX B

ALTERNATIVES AND TECHNOLOGY CONSIDERED

A summary alternatives and technology screening review was conducted to identify promising alternatives that should be evaluated as part of the accelerated Single-Shell Tank Interim Stabilization Project (SST IS Project). The review was conducted at three levels. First, broad technical alternatives were developed to the current technical baseline approach to prevent leakage of the interstitial liquid to the environment. Secondly, technology enhancements to the existing saltwell pumping system technology were identified and evaluated. Finally, specific tools and technologies to address specific technical problems or logistical weaknesses in the salt well pumping systems were identified.

The identified alternatives were qualitatively evaluated with respect to potential cost or schedule impact, the feasibility of the alternative, and the likely deployment schedule and its potential impacts to downstream retrieval and immobilization processing. Evaluation of items that appeared to have significant potential for risk reduction of the baseline cost and schedules were included in the program schedule.

B1.0 TECHNICAL DESCRIPTION OF THE PROBLEM

To evaluate potential alternatives, it is important to understand the technical aspects of the problem. As a result of previous production history, various waste slurries were transferred to the SSTs. Through settling, concentration, or subsequent precipitation, solids were deposited in various layers, usually with relatively small particle sizes. Most recently, vacuum evaporator-crystallizers were operated in both the 200 East and 200 West Areas, producing slurries with relatively large particle sizes to reduce overall waste volume. The slurries produced by the evaporator-crystallizers were deposited in SSTs that had significant available space.

Once the solids were settled from the waste slurries, the clarified supernate waste eventually transferred into the double-shell tank (DST) system. No new waste additions have been made to the SSTs since 1980.

The solids remaining in the SSTs are porous in structure, and the pores are filled with supernate liquid. The various layers of precipitated solids have widely differing particle sizes and varying pore sizes as a result. The interstitial liquid is of varying chemical and physical characteristics. The solutions are generally in chemical equilibrium with the solids they are in contact with at the solution temperature. The pore sizes of the porous bed are small enough to exhibit significant capillary potential, ranging from a few inches of head for some large solids to tens of feet for fine sludge solids. Whenever the saturated liquid level is higher than the capillary potential, the interstitial liquid can flow to areas of lower potential.

Any time an SST develops a leak, the interstitial liquid at a pressure above the capillary potential of the solids bed can flow out of the tank.

To reduce the potential for liquid leakage out of any failed SST, The U.S. Department of Energy (DOE) has developed and deployed saltwell pumping systems to drain and remove this interstitial liquid. A central screened well is installed in the center of the tank, while a specially designed jet pump is installed in the well. The pump removes liquid from the central well at the same rate that it drains to the well. In doing so, the saltwell removes the drainable liquid at the fastest rate possible. Once enough liquid is removed, the excess potential is reduced to the point where inflow into the well is reduced to less than 0.19 liter per minute (0.05 gallon per minute). At this rate, the vast majority of the drainable liquid has been removed, and flush water additions necessary to keep the system running exceed the waste drainage into the well. At this point saltwell pumping is declared complete, and the tank is isolated to ensure that water intrusion does not occur until the tank is prepared for retrieval.

At the completion of the saltwell pumping activities, the solids remaining in the tank still contain liquid on the surface of the particles, along with saturated solids areas that still retain liquid by the capillary potential of the solids bed, which cannot leak unless additional water is added to the system.

B2.0 ALTERNATIVE APPROACHES

Simply stated, the mission is to prevent the interstitial liquid contained in the SSTs from leaking to the environment until the waste can be retrieved and immobilized. Because the waste in many of the SSTs will not be retrieved until the period 2011-2018, the liquid must be either removed or contained for 10 to 20 years.

The alternatives identified are to remove the liquid from the tank, solidify the liquid in the tank to prevent its leakage, or establish a supplemental barrier outside the tank to hold the liquid in the tank pending retrieval. Following is a brief description of the identified alternatives.

B2.1 ENHANCED SALTWELL PUMPING

Enhanced saltwell pumping is basically a continuation of the baseline technology, enhanced by some of the improvements that will be discussed in Section B3.0.

B2.2 IN-TANK CAPILLARY PUMPING OR ABSORPTION

In-tank capillary pumping or absorption would use a very fine and absorbent material installed in cored holes in the tank. The absorbent material has a much higher capillary head and will extract interstitial liquid at a slow rate from both the drainable saltcakes and nondrainable sludges. As the material becomes saturated, it is removed and replaced with fresh material. Typical materials would be clays that are compatible with downstream immobilization to the extent practical. This technique was evaluated by engineering studies and cold bench-scale demonstration in the late 1970s. At that time, the amount of inert material added to the tank was determined to be very large, which results in significant increases in the volume of immobilized low-activity waste and high-level waste glass, and the time to achieve any significant liquid removal was very long. The only identified feasible application was after the drainable liquid was removed or as part of an in-tank closure technique.

B2.3 ACCELERATED RETRIEVAL

Accelerated retrieval would utilize either baseline sluicing technology or other technology to removal the interstitial liquid, along with all of the remaining waste from the SST. This effectively "leapfrogs" the saltwell completion schedule by accelerating retrieval, as is occurring with the C-106 sluicing system. However, based on the current state of sluicing technology, and the limited DST volume, it is very unlikely that one or more retrieval systems could be deployed in the time it would take to complete saltwell pumping, because of the amount of capital construction required ($20 to $80 million).

One alternative approach would add a solids-leaching element, similar to the ore-leaching industry, to the existing saltwell system. In this approach, small amounts of leach water would be distributed on the surface of the solids in the tank. This leach water would dissolve the salt, flow to the central well, and be transferred to the DST system. The amount of water added would be adjusted to match the amount of solution removed. The leach water would also open up channels within the pore structure itself and accelerate the drainage of the interstitial liquid, as well as diluting the interstitial liquid. It appears that the salt could be completely dissolved within a 1-year period, with the liquid and soluble contents of the tank removed. Deployment of this "rainbird retrieval" concept has very low capital costs, because it uses the existing saltwell pumping infrastructure. Principal issues remaining include DST volume (can the increased volume in the DST system be managed?) and significant levels of regulator and stakeholder concerns. For tanks that contain a majority of soluble solids and have a long projected pumping time, this might be a feasible alternative to cut the pumping duration and program costs.

B2.4 ELECTRO-OSMOSIS

Electro-osmosis could accelerate the rate of drainage by the addition of an electrical potential to drive drainage of the liquid, in addition to the gravity head that drives drainage in the baseline approach. Electrodes would be installed around the perimeter of the waste, and a direct-current electric voltage would be established between these electrodes and the central saltwell screen. The electrical voltage causes the interstitial liquid to flow to the central well at a higher rate. The technology is widely used in civil engineering and environmental remediation to dewater soils and sludges.

Laboratory and bench-scale work was conducted at Arizona State University and at the Hanford Site in the late 1970s. Electro-osmosis was infeasible in the highly conductive solution environment when the solids were soluble in the liquid. So much current flowed that the solutions heated up, dissolved the solids, and plugged the removal system. Once current was removed, the solution cooled and formed a large salt mass that was very difficult to dissolve or mechanically break to retrieve it. Other safety concerns involved the amount of hydrogen generated and the potential for electrochemical corrosion of the tank itself.

B2.5 ALTERNATING-CURRENT HEATING

Alternating-current heating is a technique to remove water from the interstitial liquid of the tanks, thereby reducing the volume of liquid that can leak. Again, electrodes are installed around the waste interior, with a central electrode to complete the alternating-current circuit. A high-voltage alternating-current source is connected between the perimeter electrodes and the central electrode. The current flow heats the solution and the waste, causing evaporation of the solution in the tanks. The vapor is removed by the tank ventilation system. Condensers and offgas filtration would need to be provided. The condensate from this operation may need to be re-evaporated by the evaporator before discharge to the 200 Area Effluent Treatment Facility because of entrainment.

This approach was tested at the cold bench scale at the Hanford Site in the late 1970s. As expected, significant heat was generated. However, heating of the solution resulted in the dissolution of the soluble constituents and in some cases resulted in melting of the salt itself. Upon cooling, the waste set up into a solid block of salt that was very difficult redissolve or retrieve. Safety issues regarding the high-temperature effects on the tank structures, stray electrical currents and electrochemical corrosion, hydrogen generation, and propagation of fires in some tanks with organics all made application of this technique problematic.

B2.6 MICROWAVE HEATING

Microwave heating of the wastes for drying was investigated on the bench scale at commercial laboratories in Canada, as well as at the Hanford Site in the late 1970s. While adjustment of the radio frequencies to couple with the tank waste to generate heat was possible, results were similar to the alternating-current heating discussed above. Additional safety concerns with the high-energy radio-frequency generators; wave guides, and radiation exposure to personnel also were significant.

B2.7 WIPED-FILM EVAPORATION

Wiped-film evaporation would be installed in an SST riser. Waste would be transferred from the tank to the wiped-film evaporator and undergo substantial concentration. The concentrated salt melt would discharge back into the tank, cool, and solidify. Upon completion the waste would be in a smaller waste volume, with the solids essentially existing as a solid block of salt. Full-scale prototype cold testing on both Savannah River and Hanford Site waste types was completed in 1976 at Savannah River. Both sites determined that the waste form was too difficult to retrieve and decided against deployment.

B2.8 IN-TANK SOLIDIFICATION

In-tank solidification by the addition of concrete or clay has been tested and demonstrated at both Savannah River and the Hanford Site. Simple addition of concrete or clay has not been effective at Hanford. Engineering evaluations show that substantial mixing of the concrete or clay is required to effectively immobilize the wastes. This can be accomplished by jet-mixing injection of concrete, recently demonstrated at Savannah River for tank closure or by using a tank-top waste extruder that mechanically mixes the waste with the solidification medium. Similar techniques are being evaluated for tank closure at Oak Ridge, Savannah River, and Hanford. In-tank solidification would essentially eliminate the ability to easily retrieve the waste for subsequent immobilization and would be suitable only if disposal of the waste in-tank were determined to be desirable.

Other techniques such as in situ vitrification have been considered (TWRS EIS). The current state of technology of in situ vitrification does not appear to support the immobilization of an entire tank. If in situ disposal were feasible, technology development of this approach would be desirable, because the glass waste form generally is superior to cement or clay forms.

B2.9 CLOSE-COUPLED BARRIERS

Close-coupled barriers installed underneath the tanks to contain any leaking wastes have been proposed numerous times to meet a variety of programmatic goals. Previous engineering evaluations concluded that the cost to construct a membrane (either injection or freeze barrier) was too great for the benefit achieved. Demonstrating that the barrier is truly containing the waste is problematic. Technology to construct an impermeable membrane beneath the complex tank and farm structure is not now available, even though there are promising techniques under evaluation by the Hanford Tanks Initiative Program. Development and deployment of barriers is likely to take much longer than completion of saltwell pumping, at a order-of-magnitude-greater cost per tank ($10-$100 million per tank).

B2.10 SCREENING

Screening of Table B-1 indicates that only enhancement of the existing saltwell-pumping technology and "rainbird retrieval" appear to have programmatic benefit in a time frame comparable to the baseline, without compromising future retrieval and immobilization. This

Table B-1. Alternative Approaches for Interstitial Liquid Containment.

Alternative	Existing Technology	Technology Available by 2005	Deployment Feasibility	Cost per Tank (rough order of magnitude)	Impact on Disposal
Saltwell pumping	X		Current baseline	$1-5 million	Not significant
Internal capillary pumping or absorption	X		Time required for liquid removal excessive	N/A	Large increase in low-activity waste and high-level waste immobilized waste volume
Accelerated retrieval					
-Sluicing	X		Current retrieval baseline	$20-$80 million	None
-"Rainbird retrieval"	X		Significant regulatory issues	$1-$2 million Incremental to SWP installation	Accelerated schedule, reduced cost
Electro-osmosis	X		Not effective with soluble salts	$5-$10 million	Retrieval much more difficult
Alternating current heating (drying)		X	Not effective with soluble salts	$5-$10 million	Retrieval much more difficult
Microwave heating (drying)		X	Not effective with soluble salts	$10-$20 million	Retrieval much more difficult
Wiped-film evaporation	X		Unacceptable interim waste form	$5-$10 million	Retrieval very difficult
In-tank immobilization					
-Concrete	X		Unacceptable interim waste form	$1-$10 million	Retrieval not feasible
-Clay	X		Unacceptable interim waste form	$1-$5 million	Retrieval not feasible
-In situ vitrification		X	Unacceptable interim waste form	$10-$50 million	Retrieval not feasible
Close-coupled barriers		Maybe	Installation of impermeable barrier currently not feasible	$10-$100 million	Assists in application of past-practice sluicing. May be required to complete SST waste retrieval.

suggests that technical activities to increase the effectiveness of saltwell pumping and consideration of the feasibility of accelerated retrieval by controlled water additions should be conducted early in the program to improve the cost and schedule performance of the baseline.

B3.0 ENHANCEMENT TO THE SALTWELL PUMPING TECHNOLOGY BASELINE

A number of initiatives were identified that could enhanced the current program baseline technology, either by increasing the pumping rate for tanks that have significant supernate or by increasing the rate at which liquids drain to the central saltwell.

B3.1 MULTIPLE PUMPS/WELLS

In some tanks the installation of a second screen and saltwell pump may be feasible. Analysis is required to determine whether there is a net improvement in solids drainage rate or if the second pump effectively "starves" the primary pump. Access to risers with adequate diameter and pump pits is also problematic. In cases where no risers exist, installation of a new entry into the tank could easily cost in excess of $1million per pump. An analysis will be completed to determine the net cost/benefit of additional pumps and wells in selected single-shell tanks.

B3.2 INCREASED WELL DIAMETER

Reviewing the basic equations that describe radial flow through porous media, one can derive that the flow into the central well is proportional to the ratio of the outer reservoir diameter to the central well diameter. The pseudo-steady-state equation describing this radial flow is given in *Practical Petroleum Reservoir Engineering Methods* (Slider 1976),

$$q_w = 7.08kh/\mu[(p_e - p_w)/(\ln r_e/r_w - 1/2)]$$

where

q_w = flow rate into well (barrels)

k = constant

h = height of solids layer (ft)

μ = fluid viscosity (centipoise)

p_e = pressure at tank wall (psig)

p_w = pressure at salt well (psig)

r_e = radius at tank wall (feet)

r_w = radius at salt well (feet).

Plotting the comparison of well ratios and the expected flow indicate that a doubling of the well size could increase the instantaneous flow rate into the central well by 20 percent. (Figure B-1).

Not all of the remaining SSTs require installation of saltwells, and many will not allow the installation of dramatically increased well diameters. An engineering analysis of the potential will be completed.

B3.3 ALTERNATIVE PUMPS

When a tank contains significant free supernate, installation of a submersible pump may prove to be effective for the initial removal of this liquid. While this will not accelerate the drainage of the solids, it will reduce the leakable inventory in the shortest period of time. Installation of submersible pumps appears to be most effective in Tanks A-101 and AX-101. No current Authorization Basis approval exists to allow use of submersible pumps in these tanks. An engineering analysis will be conducted to evaluate the benefit and feasibility of this installation.

With the requirements for flammable gas controls being applied to many of the remaining tanks, application of an alternative pump design may be desirable. One example of a technology of this type might be the AEA, Inc., fluidic pump. A fluidic pump utilizes compressed air as motive force and has no moveable parts in the tank or pump pit. The Tank Focus Area has demonstrated the use of this type of pump in the GAAT tanks at Oak Ridge and is currently developing a tank sampling system at Savannah River and the Hanford Site using this technology. An initial engineering evaluation of the development and deployment of a fluidic application to the saltwell-pumping program will be performed. While the fluidic pump may alleviate some safety and operational concerns, the period of development may be too long to be effective for this application.

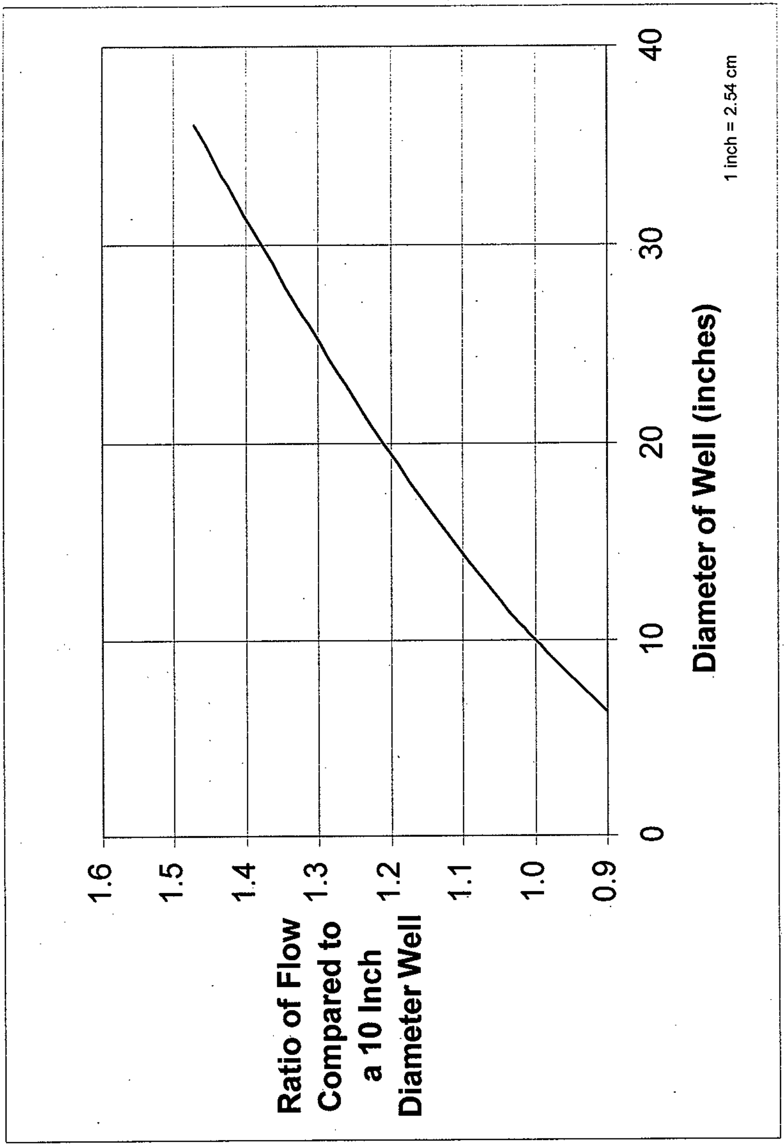

Figure B-1. Comparative Saltwell Inflow Compared to 10-Inch Screen.

B3.4 WATER ADDITIONS TO OPEN PORE STRUCTURE

For tanks that contain soluble salts, the addition of small amounts of water to the surface of the solids will dissolve some of the waste solids, opening drainage channels within the solids and increasing the drainage rate of the contained liquids. While there may be significant regulatory concerns about the addition of water to the SSTs, acceleration of the completion of saltwell pumping may outweigh the concerns.

An engineering evaluation will be conducted to determine if a process test of this process should be completed. Engineering judgement suggests that the pumping duration could be reduced by 20 to 40 percent by this approach.

B3.5 "MINING' OF RADIAL CHANNELS TO INCREASE WELL PRODUCTION RATE

Because the distance that the liquid must flow through the porous solid bed controls the rate of drainage of the solids, it appears that mining of radial channels could shorten the drainage time dramatically. A study of the effectiveness of the radial channels will be completed. Techniques for mining of the channels will be evaluated. The light duty utility arm may be useful for this application, using some of the retrieval end effectors developed by the Tank Force Area and demonstrated at Oak Ridge. Some of the technology being demonstrated by the Hanford Tank Initiative also may be directly applicable.

B4.0 SALTWELL PUMPING SYSTEMS LOGISTIC ENHANCEMENTS AND CONTINGENCY

The systems analysis of the saltwell pumping physical system identified several pinch points and potential contingency capabilities. Technology and engineering activities were recommended to address these operational issues.

B4.1 DOUBLE-CONTAINED RECEIVER TANK LOGISTICS AND WORKAROUNDS

As discussed in the mission analysis contained in Section 2.0, the 244-S and 244-U double-contained receiver tanks (DCRT) have several extended periods of operation well above historical production averages. The Operations organization has identified several sources of concern including the ability to sustain transfers from the DCRT's at 2 or 3 per week and maintain the necessary material balances to keep the system operational while multiple saltwells are operating.

It may be feasible to bypass the 244-S DCRT and transfer the pumped liquid directly to SY-102. This will reduce the downtime of the saltwell systems in S and SX Farms, which must be shut down whenever the DCRT is full and is transferring to SY-102. Because the baseline plan requires 2 to 3 weekly transfers from the 244-S DCRT for over 92 weeks, direct transfer to SY-102 could substantially reduce S and SX Farms pump downtime. A new approach to establishing the controls necessary to monitor for single contained line leakage in S and SX Farms will need to be developed, but should be feasible. A similar workaround should be evaluated for 244-U DCRT.

B4.2 USE OF LR-56 FOR EMERGENCY PUMPING OF COMPLEXANT TANKS

The baseline schedule maintains segregation of complexed, transuranic (TRU) complexed, and noncomplexed wastes. This results in three separate saltwell pumping campaigns in the 200 West Area. First, the noncomplexed waste is pumped because it represents the largest volume and number of tanks in the 200 West Area. Once the noncomplexed waste is completed, the complexed waste in U and SX Farms is pumped. Finally the single TRU complexed waste is pumped at the end of the campaign in the 200 West Area.

The major vulnerability of this approach is that one of the complexed tanks may begin leaking before the complexed campaign begins in the 200 West Area. To maintain segregation, all noncomplexed waste saltwells would need to be shut down while this tank was emergency pumping. The remaining complexed tanks would need to be accelerated so that the overall program duration does not extend dramatically.

The LR-56 truck could be used to collect the waste being emergency pumped from any leaking complexed or TRU-complexed tank. This would allow the remaining noncomplexed waste saltwells to continue to pump without a major schedule disruption. An engineering study would need to be made to assess the logistics of using the LR-56 tank truck for this purpose.

B4.3 LINE-UNPLUGGING TOOLS

The baseline plan assumes that 20 percent of the single contained lines will fail a hydro test or will be plugged, preventing their use. In these cases, an overground line will be installed to work around these occurrences.

The Federal Energy Technology Center is currently soliciting private sector technology demonstrations of line unplugging technology. The specifications for this technology will contain requirements for both Savannah River and Hanford Site line configurations. Demonstration of selected technologies will be conducted at Savannah River in 1998. Successful demonstration of this technology may allow unplugging of saltwell and transfer lines. This could avoid the need to install so many replacement lines.

B4.4 ADDITIONAL WASTE-VOLUME STORAGE CONTINGENCY

Dilution of saltwell liquid to control line pluggage and dissolution of salts will increase the volume of liquids produced by the saltwell project. The volume of liquid resulting from saltwell pumping is one of the largest factors in the management of DST space. Production of too much liquid could result in delays of the completion of saltwell pumping or impacts to the preparation of feed to the immobilization contractors.

The evaporator is used as the primary technique to remove water from the 200 East Area DST system, but limitations in the level of concentration of the 200 West Area will limit its effectiveness.

To keep both the saltwell pumping project and the feed delivery mission on track, particularly as changes occur in the current baseline for both, additional volume management techniques may need to be available.

Since the cancellation of the Multifunction Waste Tank Facility tank construction project, options over the short term are very limited. Other than elimination of segregation and compatibility rules, or utilization of required spare space, there do not appear to be any easy answers. Construction of new DST space will take too long to solve the near-term potential problems. Reuse of empty SSTs is not allowable under current regulations and agreements. However, use of a containment bladder inside of an empty SST may be acceptable to the regulators and could give substantial breathing room for completion of both missions. An engineering evaluation of the feasibility of a bladder approach will be completed.

B5.0 "SPECIAL CASE" TECHNOLOGY

Several specific issues require development, deployment, or assessment of technologies not currently available to the SST stabilization project. This section discusses the alternatives that will need to be evaluated to meet the baseline project requirements or to address significant schedule drivers.

B5.1 TANK C-103 ORGANIC SKIMMING

Tank C-103 has about 280,000 liters (74,000 gallons) of liquid to pump. Of that, there are approximately 19,000 liters (5,000 gallons) of organic waste floating on top of the waste surface in the tank. The current concept of removing this organic is to skim the waste off and collect it in a double-contained tank and store the waste above ground until technology is developed to process the organic. The remaining 261,000 liters (69,000 gallons) would be jet pumped, pumped to the 244-CR vault, and then moved to DST AP-108 for feed to the 242-A Evaporator. An alternate concept of storing the organic is to store it aboveground in two existing *Resource Conservation and Recovery Act of 1976*-compliant tanks used previously by B Plant for organics storage.

One of the ways to dispose of the organic involves the distillation process used several years ago to remove hexone-contaminated liquid from Hanford Site liquid waste. This distillation equipment is available for use. A study of this distillation process is recommended as well as a review for possible use of the two tanks located near B Plant.

B5.2 TANK BY-105 "CONCRETE" TANK

In 1995, the interim stabilization project attempted to install a saltwell pump into an existing saltwell screen in Tank BY-105. In attempting to clear the screen with a water lance, employees found a very hard layer of material near the surface of the waste. Subsequent investigation identified that Portland cement had been added in the mid-1960s. Recently, core sampling was attempted and very hard material was encountered near the waste surface. The normal system of water lancing was not successful in penetrating the material in the saltwell screen.

Technology needs to be developed and tested to allow the installation of a new saltwell screen and pump into this tank. A high-pressure lancing system has been proposed for this task. Existing small-diameter high-pressure lances have been used at the Hanford Site but the larger system currently does not exist. Once the system is developed, built, and tested, it will be used to install the pump and saltwell screen.

Because there is a significant amount of Portland cement in this tank, pumping will have to be monitored very closely. One concern is that as the liquid waste is pumped out of the tank, the cement will stay attached to equipment suspended from the tank dome. Monitoring of the tank dome deflection will be required to ensure that the concrete does not cause a problem with the tank.

B5.3 ORGANIC COMPLEXANT COMINGLING

DOE has established a requirement to maintain segregation of wastes containing organic complexants, TRU complexed waste, and noncomplexed wastes. Principal concerns result from the behavior of the complexant that can solubilize plutonium and other transuranic substances and can make the normally immobile TRU constituents mobile. This can increase the environmental risk of any leaks that might occur. A second concern is the behavior of the waste during pretreatment and immobilization. The Hanford Site's baseline disposal flowsheet assumes separation of the high-level waste into high-level fraction and a non-TRU low-activity fraction. Immobilization and disposal of the high-level fraction is much greater than the immobilization and disposal cost of the low-activity fraction. Traditionally, site flowsheets have assumed that any TRU contained in the complexed waste must be separated to allow disposal of the remainder as low-activity waste. Any complexed waste coming in contact with TRU compounds contained in sludge could produced larger quantities of TRU complexed waste, requiring more costly treatment before immobilization.

Finally, some of the liquid wastes containing organics from complexants and other sources have shown waste characteristics that limit the extent of concentration that can be achieved in the evaporator. This is important to allow maximum utilization of DST space in the 200 East Area and to limit the potential impacts on saltwell pumping and feed delivery activities.

In fact, several of the "complexant" wastes in U Farm have undergone chemical evaluation that shows that the complexant ability of the wastes has been destroyed. As a result, several of the tanks previously categorized as complexant waste are no longer required to be segregated. The degradation of the organic caused by radiolysis and other chemical processes is expected to occur wherever similar conditions occur.

Samples of the remaining complexant wastes will be taken, and the complexant ability will be evaluated, along with other important compatibility parameters. The ability of evaporation of the wastes will be established. Based on this data, most (if not all) of the complexed tanks are expected to be recategorized.

Also, the current contracts in place with the immobilization vendors show no difference in treatment and immobilization costs for TRU complexed, complexed, or noncomplexed wastes. These contracts are under negotiation with the vendors at this time. By the end of May, DOE expects to award any contracts for treatment and immobilization services for both low-activity waste and high-level waste feeds. Once these contracts are in place, the cost/benefit of continuing to segregate complexed, TRU-complexed, and noncomplexed waste will be reevaluated for any wastes that may still be designated as complexed.

The implications to the baseline plan are very dramatic. As described earlier, the 200 West Area saltwell pumping must now be completed in three campaigns: noncomplexed, complexed, and TRU-complexed. This results in an extension of 12 to 18 months of the baseline schedule to retain segregation. Any changes to either the complexed designation or DOE's acceptance of an updated cost/benefit analysis based on updated vendor treatment and immobilization contract prices will have a dramatic effect on saltwell pumping completion schedule and program costs.

B6.0 POTENTIAL COST AND SCHEDULE PERFORMANCE ENHANCEMENT

A summary of the potential benefits of the above-discussed alternatives has been summarized in Table B-2. In each case the recommended activities discussed above have been included in the baseline plan. Completion of the items holds the potential to substantially reduce program cost and schedule.

B7.0 REFERENCE

Slider, H. C., 1976, *Practical Petroleum Reservoir Engineering Methods*, Petroleum Publishing Company, Tulsa, Oklahoma.

Table B-2. Potential Risk Reduction, Cost, and Schedule Benefits from Technology and Risk Reduction Activities. (2 Sheets)

Initiative	Applicability (#tanks/29) (#lines/total) (#transfers/total)	Risk Reduction Schedule Enhancement Cost Reduction (Include all that apply)	Potential Schedule Enhancement (Months to completion)	Potential Cost Impacts (if any)
Submersible Pumps	2 tanks/29 tanks	Schedule Enhancement Risk Reduction	(applicable tanks not on critical path to completion)	
S&SX Direct Transfer to SY-102	14 tanks/29 180 DCRT transfers/ 260 Total	Risk Reduction Schedule Enhancement	6-12 months	$6-12M
Multiple Pumps/Wells	20 tanks/29 tanks	Risk Reduction	Unknown	Probable Cost increase
Increase Salt Well Screen Diameter	20 tanks/29 tanks	Schedule Enhancement Risk Reduction	up 20% reduction in pumping duration (up to 10 Months)	$5-10M
Water Additions to enhance pore sizes and structure (Salt cake tanks only)	20 Salt Cake tanks/29	Risk Reduction Schedule Enhancement	up to 20 % reduction in pumping durations (up to 10 months)	$5-10
Use of LR-56 for Contingency Pumping of TRU/complexed tanks	5 tanks/29	Risk Reduction	helps maintain baseline schedule in case of complexed tank leaking	
Line Unplugging Tools	40 sections of direct buried routes	Risk Reduction Cost Reduction	Maintain baseline schedule, avoid installation of overground lines	TBD cost of replacement of 20% line pluggage by overground transfers
Additional Waste Volume Storage Contingency	N/A	Risk Reduction	Maintain Baseline Schedule, avoid pumping outages due to waste space limitations	Increased cost to implement contingency
Do Not Remove Organic Layer from C-103	1/29	Cost Reduction Schedule Enhancement Risk Reduction	Removes C-103 from critical path	$3.9M

Table B-2. Potential Risk Reduction, Cost, and Schedule Benefits from Technology and Risk Reduction Activities. (2 Sheets)

Initiative	Applicability (#tanks/29) (#lines/total) (#transfers/total)	Risk Reduction Schedule Enhancement Cost Reduction (Include all that apply)	Potential Schedule Enhancement (Months to completion)	Potential Cost Impacts (if any)
Organic Complexant/TRU Commingling	5 tanks/29 (All Control Critical Path to completion)	Schedule Enhancement Cost Reduction Risk Reduction	12-18 months acceleration of completion	$12-18 M
Accelerated Retrieval (applicable to long pumping salt cake tanks only)	20 salt cake tanks/29 (created volume will likely limit application to one tank only)	Schedule Enhancement Risk Reduction	Accelerate completion of one tank by 12-24 Months	Reduces baseline Retrieval Program cost by $20-80M (one less tank to sluice)

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APPENDIX C

SINGLE-SHELL TANK INTERIM STABILIZATION EXTERNALLY IMPOSED REQUIREMENTS

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LIST OF TABLES

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APPENDIX C

SINGLE-SHELL TANK INTERIM STABILIZATION EXTERNALLY IMPOSED REQUIREMENTS

Table C-1. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - Code of Federal Regulations. (4 Sheets)

	Title	Comment (significant interest areas)
External Code or Regulation	Standards for Protection Against Radiation	- Access controls
10 CFR 61	Licensing Requirements for Land Disposal of Radioactive Waste	- Protection of the general population from releases of radiation. Equivalent annual dose limits for public exposure to contaminated groundwater, surface water, air, soil, plants, and animals - Protection of individuals from inadvertent intrusion - Burial requirements for Class A and Class C waste Specifies pertinent onsite immobilized low-level waste burial requirements - Classification of wastes - Classification specifications for Class A and Class C waste. Designates whether immobilized waste may be in general buried onsite or if it is necessary to dispose of in an isolated deep repository - Minimum requirements for all waste classes and are intended to facilitate handling at the disposal site and provide protection of health and safety of personnel at the disposal site
10 CFR 830	Nuclear Safety Management	- Applicable to Quality Assurance Program, personnel training, quality improvement
10 CFR 835	Occupational Radiation Protection	- Occupational exposure limits for general employees
10 CFR 962	By-Product Material	- DOE obligation to RCRA - Defines DOE's obligations to the RCRA with regard to radioactive waste substances
29 CFR 1910	Occupational Safety and Health Standards	- Occupational Safety and Health Standards regulations

Table C-1. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - Code of Federal Regulations. (4 Sheets)

	Title	Comment (significant interest areas)
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards	- Ambient air quality standards - primary limits for sulfur oxides - Ambient air quality standards - secondary limits for sulfur oxides - Ambient air quality standards - primary and secondary limits of particulate matter - Ambient air quality standards - primary limits for carbon monoxide - Ambient air quality standards - primary and secondary limits for ozone - Ambient air quality standards - primary and secondary for nitrogen dioxide - Ambient air quality standards - primary and secondary standards for lead
40 CFR 61	National Emission Standards for Hazardous Air Pollutants	- Dose limit from DOE facility. Emissions to ambient air from DOE facilities will not exceed limit to any member of the public in 1 year
40 CFR 191	Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes	- Public dose limits. Management and storage of spent nuclear fuel, high-level, or transuranic radioactive wastes annual dose equivalents to any member of the public in the general environment.

Table C-1. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - Code of Federal Regulations. (4 Sheets)

	Title	Comment (significant interest areas)
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	- Storage requirements - Hazardous wastes must not be placed in tank system if they could cause the tank or associated ancillary equipment and containment system to rupture, leak, corrode, or otherwise fail - Storage requirements - The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank to containment systems - Storage requirements - Ignitable or reactive waste must not be placed in tank systems, unless: (1) the waste is treated, rendered, or mixed so that the waste is protected from a material or condition that may cause the waste to ignite or react or 40 CFR 264.17(b) is complied with, or (2) the tank system is used solely for emergencies. Stored ignitable or reactive wastes must comply with requirement for protective distances from the public. - Storage requirements - Incompatible wastes or incompatible wastes and materials must not be placed in same tank system, unless 40 CFR 264.17(b) is complied with - Closure requirement - Decontamination at closure of a containment building. Owner/operator must decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste and leachate, and manage as a hazardous waste. - Waste containment system closure requirements. At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or residues must be decontaminated or removed.

Table C-1. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - Code of Federal Regulations. (4 Sheets)

	Title	Comment (significant interest areas)
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	- Secondary containment - Spill convention and controls - Incompatible/ignitable wastes
40 CFR 268	Land Disposal Restrictions	- Applicable exceptions for which otherwise prohibited wastes may be disposed of in a landfill - Certain wastes prohibited from land disposal - Applicability of treatment standards

CFR = Code of Federal Regulations.
DOE = U.S. Department of Energy.
RCRA = *Resource Conservation and Recovery Act of 1976*.

Table C-2. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - Washington Administrative Code.

External Code or Regulation	Title	Comment (significant interest areas)
WAC 173-200	Water Quality Standards for Ground Waters of the State of Washington	- Liquid effluent discharge to the environment
WAC 173-201A	Water Quality Standards for Surface Waters of the State of Washington	- Liquid effluent discharge to the environment
WAC 173-303	Dangerous Waste Regulations	--
WAC 173-400	General Regulations for Air Pollution Sources	- Nonradioactive air emissions, new source review/notice of construction, source registration
WAC 173-401	Operating Permit Regulation	--
WAC 173-460	Controls for New Sources of Toxic Air Pollutants	- Nonradioactive air emissions, toxic air pollutants
WAC 173-480	Ambient Air Quality Standards and Emission Limits for Radionuclides	--
WAC 246-247	Radiation Protection--Air Emissions	- Ambient air quality standards and emission standards will be those promulgated by Ecology in WAC 173-480

Table C-3. Single-Shell Tank Interim Stabilization Project Externally Imposed Requirements - U.S. Department of Energy Orders and Other Federal Regulations.

External Code or Regulation	Title	Comment(significant interest areas)
See the PHMC contract,* Appendix C, Section J, Part III - List of Documents Exhibits and Other Attachments, DOE Orders and Directives. (NOTE: This list is still undergoing change so it is necessary to refer to the latest list from Contracting to obtain a complete listing of all the codes.)		
Other regulations and requirements		
External code or regulation	Title	Comment (significant interest areas)
RCRA-B(DW)(940829)	Dangerous Waste Portion of the RCRA Permit for the Treatment, Storage, and Disposal of Hazardous Waste	- Standards for hazardous treatment, storage, and/or disposal facilities
Project Hanford policies and procedures	(Numerous)	--
Hanford Site Radiological Control Manual, HSRM-1 Sections 111, 112	--	- Summary of health and safety regulations

*RL, 1996b, *Project Hanford Management Contract (PHMC)*, DE-AC06-96RL13200, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

RCRA = *Resource Conservation and Recovery Act of 1976*.

Table C-4. Source Document: DOE/RL-96-92, Hanford Strategic Plan.

HSTD Reference	Extracted Requirement
HSP.CP. EM.AREA. GOAL	**Area Goal - Central Plateau** The 200 Areas and Central Plateau will be used for the management of nuclear materials and the collection and disposal of waste materials that remain onsite and for other related and compatible uses. Cleanup levels and disposal standards will be established that are consistent with these long-term uses.
HSP.ET.4.B	**Endpoint Target - Facilities** (B) Transition high-cost surplus facilities in the Central Plateau and south 600 Areas to a low-cost, stable, deactivated condition.
HSP.ET.6.A	**Endpoint Target - Tank Waste** (A) Retrieve tank wastes to the extent needed for tank closure, divide into high-level and low-activity fractions and immobilize.
HSP.ET.6.E	**Endpoint Target - Tank Waste** (E) After the waste has been retrieved from the tanks, the tank farms (including the tanks) will be closed.
HSP.TW.A	**Material Category Goal - Tank Waste** (A) Tank waste from SSTs and DSTs will be retrieved for immobilization.
HSP.FAC.C	**Material Category Goal - Facilities** © Surplus facilities will be decommissioned and decontaminated sufficiently to enable removal or closure through entombment.

Source: RL, 1996a, *Hanford Strategic Plan*, DOE/RL 96-92, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DST = double-shell tank.

HLW = high-level waste.

HSTD = *Hanford Site Technical Baseline Database*.

LAW = low-activity waste.

SST = single-shell tank.

Table C-5. Source Document: DOE/EIS-0222D, Draft Hanford Remedial Action Environmental Impact Statement and Comprehensive Land Use Plan.

HSTD Reference	Extracted Reference
CLU P.5.3.2 200	**Area/Central Plateau EM Goal** The 200 Area and the Central Plateau will be used for management of nuclear materials, collection and disposal of waste materials that remain onsite, and other related and compatible uses. Remediation levels and disposal standards that are consistent with long-term uses will be established.
CLUP.5.3.2.1NT.3 200	**Area/Central Plateau EM Goal** © The 200 Area and the Central Plateau will be used for disposal of waste materials that remain onsite, and other related and compatible uses.
CLUP.5.3.2.1NT.4 200	**Area/Central Plateau EM Goal** (D) Remediation levels and disposal standards that are consistent with long-term uses for the Central Plateau will be established
CLUP.5.3.2.b	**200 Area/Central Plateau EM Goal - Tank Waste** Retrieve and vitrify. Dispose of HLW offsite. Onsite disposal of LLW: Tank farms closed.
CLUP.5.3.2.b.1NT.	**200 Area/Central Plateau EM Goal - Tank Waste** (A) Tank waste will be retrieved from 200 Area underground waste storage tanks.
CLUP.5.3.2.b.1NT.2	**200 Area/Central Plateau EM Goal - Tank Waste** (B) Retrieved tank waste will be vitrified to make disposal ready.
CLUP.5.3.2.b.1NT.3	**200 Area/Central Plateau EM Goal - Tank Waste** © Vitrified HLW will be disposed of offsite.
CLUP.5.3.2.f	**200 Area/Central Plateau EM Goal - Facilities** Transition production facilities to stable deactivated conditions. Entomb process facilities in place, with co-disposal of waste materials. Dismantle other facilities.

Source: DOE, 1996, *Draft Hanford Remedial Action Environmental Impact Statement and Comprehensive Land Use Plan*, DOE/EIS-0222D, U.S. Department of Energy, Washington, D.C.

EM = U.S. Department of Energy, Office of Environmental Restoration and Management.

HLW = high-level waste.

HSTD = *Hanford Site Technical Baseline Database*.

LLW = low-level waste.

Table C-6. Source Document: DE-AC06-96RL13200, Project Hanford Management Contract, Fluor Daniel Hanford, Inc.

HSTD Reference	Extracted Reference
TWR.1.3.1	**TWR1.3.1** Complete retained gas sampling in Tanks AW-101, AN-102, AN-104, AN-105, and U-103 and provide recommendation for future deployment.
TWR.1.3.5	**TWR1.3.5** Complete installation of 15 new and 2 existing spare standard hydrogen monitor systems on additional flammable gas tanks.
TWR.4.1.1	**TWR4.1.1** Stage waste to reduce waste volume.
TWR.5.1.7	**TWR5.1.7** Maintain the capability to manage double-shell tank space in the West Tank Farms by ensuring at least one existing cross-site transfer system from the 200 West Area to the 200 East Area is leak tight.
TWR.5.1.8	**TWR5.1.8** Support vadose zone characterization in S and SX tank farms by achieving performance completion criteria.

Source: RL, 1996b, *Project Hanford Management Contract (PHMC)*, DE-AC06-96RL13200, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DST = double-shell tank.

HSTD = *Hanford Site Technical Baseline Database*.

Table C-7. Source Document: DOE/RL-89-10, Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev. 4. (3 Sheets)

HSTD Reference	Extracted Requirement	Due Date
TPA.M.40.0	**Tank Safety Issues** Mitigate (resolve) tank safety issues for high-priority watch list tanks.	9/30/2001
TPA.M.41.0.a	**SST Interim Stabilization** Complete SST interim stabilization.	9/30/2000
TPA.M.41.0.b	**SST Intrusion** Complete intrusion prevention for all SSTs except Tank C-106.	9/30/2000
TPA.M.43.1.C	**W-030 Operation** Begin operation of Project W-030.	10/31/1997
TPA.M.43.7	**Cross-Site Transfer System Replacement** Complete Project W-058 replacement of cross-site transfer system.	2/28/1998
TPA.M.43.7.B	**Construct W-058** Complete construction of Project W-058.	8/31/1997
TPA.M.43.7.C	**Cross-Site Transfer System Operational** Cross-site transfer system operational.	2/28/1998
TPA.M.45.0	**SST Closure** Complete closure of all SST farms.	9/30/2024
TPA.M.45.3.A.a	**Tank C-106(a)** Initiate sluicing retrieval of Tank C-106 to resolve the high-heat safety issue.	10/31/1997
TPA.M.45.3.A.b	**Tank C-106(b)** Initiate sluicing retrieval of Tank C-106 to demonstrate waste retrieval.	10/31/1997
TPA.M.45.3.T.1	**SST Waste Retrieval** Complete SST waste retrieval demonstration.	9/30/2003
TPA.M.45.3.T.2	**Tank C-106 Retrieval Demonstration** Initiate final retrieval demonstration of Tank C-106.	6/30/2002
TPA.M.45.4.T.1	**SST Initial Retrieval Systems** Provide initial SST retrieval systems.	11/30/2003
TPA.M.45.4.T.3	**SST Retrieval Systems** Complete construction for the initial SST retrieval systems	6/30/2003
TPA.M.45.5	**SST Retrieval** Retrieve waste from all remaining SSTs.	9/30/2018
TPA.M.45.5.T.1	**SST Retrieval (2003)** Initiate tank waste retrieval from one SST.	12/31/2003
TPA.M.45.5.T.2	**SST Retrieval (2004)** Initiate tank waste retrieval from two additional SSTs.	9/30/2004
TPA.M.45.5.T.3	**SST Retrieval (2005)** Initiate tank waste retrieval from three additional SSTs.	9/30/2005
TPA.M.45.5.T.4	**SST Retrieval (2006)** Initiate tank waste retrieval from four additional SSTs.	9/30/2006

Table C-7. Source Document: DOE/RL-89-10, Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev. 4. (3 Sheets)

HSTD Reference	Extracted Requirement	Due Date
TPA.M.45.5.T.5	**SST Retrieval (2007)** Initiate tank waste retrieval from five additional SSTs.	9/30/2007
TPA.M.45.5.T.6	**SST Retrieval (2008)** Initiate tank waste retrieval from five additional SSTs.	9/30/2008
TPA.M.45.5.T.8	**SST Retrieval (2010)** Initiate tank waste retrieval from eight additional SSTs.	9/30/2010
TPA.M.45.5.T.9	**SST Retrieval (2011)** Initiate tank waste retrieval from ten additional SSTs.	9/30/2011
TPA.M.45.5.T.10	**SST Retrieval (2012)** Initiate tank waste retrieval from 12 additional SSTs.	9/30/2012
TPA.M.45.5.T.11	**SST Retrieval (2013)** Initiate tank waste retrieval from 14 additional SSTs.	9/30/2013
TPA.M.45.5.T.12	**SST Retrieval (2014)** Initiate tank waste retrieval from 17 additional SSTs.	9/30/2014
TPA.M.45.5.T.13	**SST Retrieval (2015)** Initiate tank waste retrieval from 20 additional SSTs.	9/30/2015
TPA.M.45.5.T.14	**SST Retrieval (2016)** Initiate tank waste retrieval from 20 additional SSTs.	9/30/2016
TPA.M.45.5.T.15	**SST Retrieval (2017)** Initiate tank waste retrieval from 20 additional SSTs.	9/30/2017
TPA.M.45.6	**SST Closure M-45-06 9/30/2024** Complete closure of all SST farms. The SST closure work plan will be prepared describing the work integration process for SST closures and status of work and integration process. Known issues will be identified and an explanation will be given on how these issues are being addressed. This work plan will be provided to Ecology for review/comment and will be used as a roadmap for closure of the SSTs. Because of the uncertainties in the closure process, the work plan will evolve as these uncertainties are resolved and eventually it will become the SST closure/post-closure plan(s) issued for Ecology's approval under subsequent Tri-Party Agreement interim milestones. Major work areas covered in the work plan will include waste retrieval, operable units characterization, technology development to support closure, regulatory pathway, and strategy for achieving closure.	--
TPA.M.45.6.T.2	**Demo Tank Farm Closure Plan** Ecology will issue final closure/post-closure plan for selected closure demonstration operable unit or tank farm.	9/30/2006

Table C-7. Source Document: DOE/RL-89-10, Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), Rev. 4. (3 Sheets)

HSTD Reference	Extracted Requirement	Due Date
TPA.M.45.6.T.3	**Initiate Closure Actions** Initiate closure actions on an operable unit or tank farm basis. Closure will follow completion of the retrieval actions under proposed Milestone M-45-05. Closure will be defined in an approved closure plan for the demonstration farm. Final closure is defined as regulatory approval of completion of closure actions.	3/31/2012
TPA.M.45.6.T.4	**Complete Closure Actions 2014** Complete closure actions on one operable unit or tank farm.	3/31/2014
TPA.M.45.8	**Capability to Mitigate Waste Tank Leakage** Establish full-scale capability for mitigation of waste tank leakage during retrieval sluicing operations.	6/30/2003
TPA.M.45.8.B	**Demonstrate Leak Monitoring System** Complete demonstration and installation of leak monitoring and mitigation systems for initial SST.	6/30/2003

Source: Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

Ecology = Washington State Department of Ecology.
HLW = high-level waste.
HSTD = Hanford Site Technical Baseline Database.
IHLW = immobilized high-level waste.
ILAW = immobilized low-activity waste.
LAW = low-activity waste.
SST = single-shell tank.
TBD = to be determined.

TABLE REFERENCES

Acts

Resource Conservation and Recovery Act of 1976, as amended, 42 USC 6901 et seq.

Code of Federal Regulations

10 CFR 61, 1997, "Licensing Requirements for Land Disposal of Radioactive Wastes," *Code of Federal Regulations*.

10 CFR 830, 1997, "Nuclear Safety Management," *Code of Federal Regulations*.

10 CFR 835, 1993, "Occupational Radiation Protection," *Code of Federal Regulations*.

10 CFR 962, 1997, "By-Product Material," *Code of Federal Regulations*.

29 CFR 1910, 1997, "Occupational Safety and Health Standards," *Code of Federal Regulations*.

40 CFR 50, 1996, "National Primary and Secondary Ambient Air Quality Standards," *Code of Federal Regulations*.

40 CFR 61, 1997, "National Emission Standards for Hazardous Air Pollutants," *Code of Federal Regulations*.

40 CFR 191, 1996, "Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes," *Code of Federal Regulations*.

40 CFR 264, 1996, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*.

40 CFR 265, 1996, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*.

40 CFR 268, 1996, "Land Disposal Restrictions," *Code of Federal Regulations*.

Databases

HSTD, n.d., *Hanford Site Technical Baseline Database*, maintained by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

Washington Administrative Code

WAC 173-200, "Water Quality Standards for Ground Waters of the State of Washington," *Washington Administrative Code*, as amended.

WAC 173-201A, "Water Quality Standards for Surface Waters of the State of Washington," *Washington Administrative Code*, as amended.

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

WAC 173-400, "General Regulations for Air Pollution Sources," *Washington Administrative Code*, as amended.

WAC 173-401, "Operating Permit Regulation," *Washington Administrative Code*, as amended.

WAC 173-460, "Controls for New Sources of Toxic Air Pollutants," *Washington Administrative Code*, as amended.

WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides," *Washington Administrative Code*, as amended.

WAC 246-247, "Radiation Protection--Air Emissions," *Washington Administrative Code*, as amended.

Documents

DOE, 1996, *Draft Hanford Remedial Action Environmental Impact Statement and Comprehensive Land Use Plan*, DOE/EIS-0222D, U.S. Department of Energy, Washington, D.C.

Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

HSRCM-1, 1994, *Hanford Site Radiological Control Manual*, Rev. 2, prepared for the U.S. Department of Energy, Richland Operations Office, by the Hanford Site Contractors and managed by Pacific Northwest National laboratory Records Management Office, Richland, Washington.

RL, 1996a, *Hanford Strategic Plan*, DOE/RL 96-92, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

RL, 1996b, *Project Hanford Management Contract (PHMC)*, DE-AC06-96RL13200, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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APPENDIX D

SINGLE-SHELL TANK INTERIM STABILIZATION INTEGRATED SCHEDULE DETAIL CASE 1

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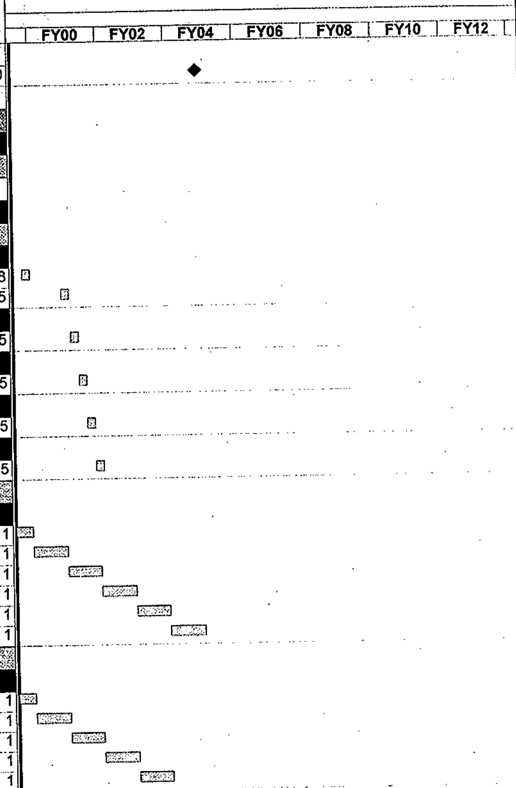
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
SSTMS01	M-41-00 COMPL SST INTERIM	0		05SEP03	0
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.39 SST Project Mgt/Tech Support/Compliance					
1.01.02.01.04.39.01 SST Process Engineering Studies					
1.01.02.01.04.39.01.01 Saltwell Screen Engineering Study					
23070H1	Eng Study Saltwell Screen FY98 4th Quarter	60	01JUL98*	25SEP98	958
23070H2	Eng Study Saltwell Screen FY99 1st Quarter	60	01SEP99*	24NOV99	725
1.01.02.01.04.39.01.02 Water Spray Engineering Study					
23070H3	Eng Study Water Spray FY99 1st Quarter	60	29NOV99*	24FEB00	725
1.01.02.01.04.39.01.03 Radial Channels Engineering Study					
23070H4	Eng Study Radial Channels FY99 1st Quarter	60	25FEB00*	18MAY00	725
1.01.02.01.04.39.01.04 Ram Analysis Engineering Study					
23070H5	Eng Study, Ram Analysis FY98 4th Quarter	60	19MAY00*	15AUG00	725
1.01.02.01.04.39.01.05 Material AB Amendment Engineering Study					
23070H6	Eng Study - Material AB Amendment FY98 4th	60	16AUG00*	08NOV00	725
1.01.02.01.04.39.02 Baseline/Financial Control					
1.01.02.01.04.39.02.01 Baseline Development/Financial Change Control					
23070B1	Baseline/Financial Control FY98	127	01APR98	30SEP98	1
23070B2	Baseline/Financial Control FY99	251	01OCT98	30SEP99	1
23070B3	Baseline/Financial Control FY00	251	01OCT99	29SEP00	1
23070B4	Baseline/Financial Control FY01	251	02OCT00	28SEP01	1
23070B5	Baseline/Financial Control FY02	250	01OCT01	30SEP02	1
23070B6	Baseline/Financial Control FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.03 Project Management					
1.01.02.01.04.39.03.01 Project Management Support					
23070N1	Project Management FY98	127	01APR98	30SEP98	1
23070N2	Project Management FY99	251	01OCT98	30SEP99	1
23070N3	Project Management FY00	251	01OCT99	29SEP00	1
23070N4	Project Management FY01	251	02OCT00	28SEP01	1
23070N5	Project Management FY02	250	01OCT01	30SEP02	1



Project Start	01OCT97
Project Finish	01OCT03
Data Date	01APR98
Run Date	27MAR98

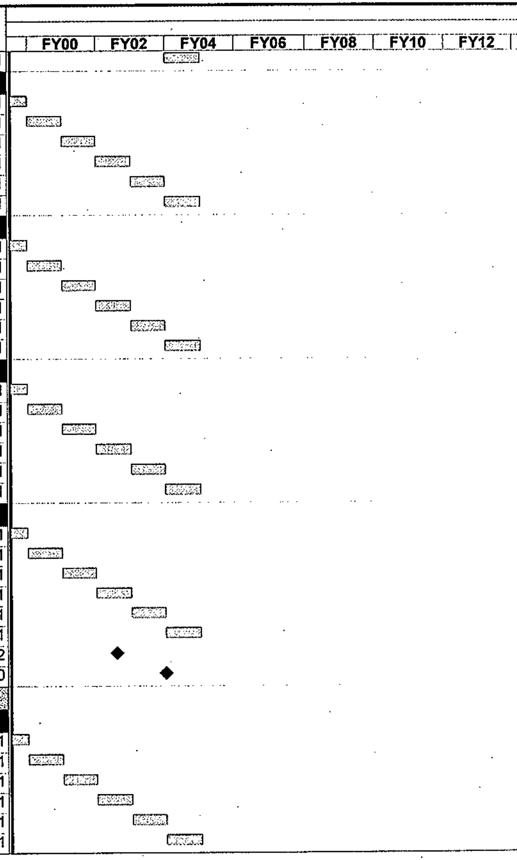
Early Bar
Progress Bar
Critical Activity

SSTI

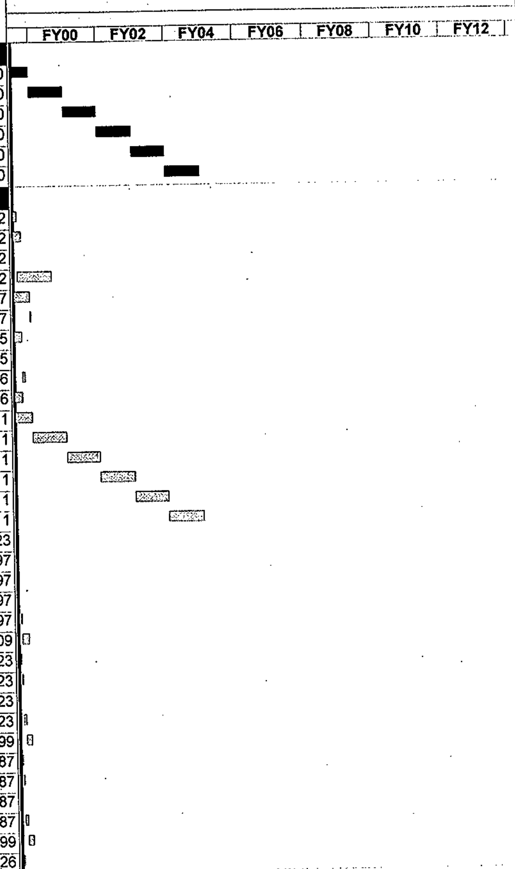
Sheet 1 of 62

Appendix D, Single-Shell Tank
Interim Stabilization Integrated
Detail Schedule, Case 1

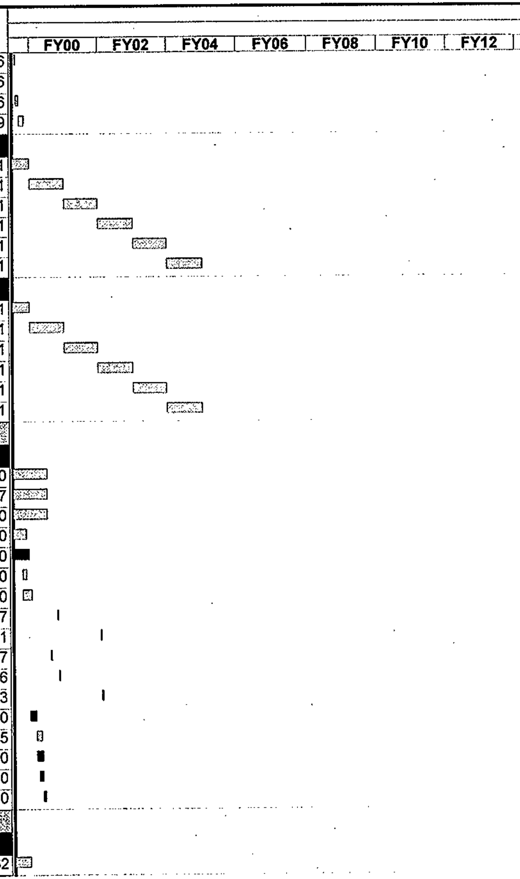
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23070N6	Project Management FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.03.02 Management Assessments (Internal)					
23070M1	Management Assessments FY98	127	01APR98	30SEP98	1
23070M2	Management Assessments FY99	251	01OCT98	30SEP99	1
23070M3	Management Assessments FY00	251	01OCT99	29SEP00	1
23070M4	Management Assessments FY01	251	02OCT00	28SEP01	1
23070M5	Management Assessments FY02	250	01OCT01	30SEP02	1
23070M6	Management Assessments FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.03.03 External Assessments					
23070E1	External Assessments FY98	127	01APR98	30SEP98	1
23070E2	External Assessments FY99	251	01OCT98	30SEP99	1
23070E3	External Assessments FY00	251	01OCT99	29SEP00	1
23070E4	External Assessments FY01	251	02OCT00	28SEP01	1
23070E5	External Assessments FY02	250	01OCT01	30SEP02	1
23070E6	External Assessments FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.03.04 Utilities And Assessments					
23070Q1	Utilities and Assessments FY98	127	01APR98	30SEP98	1
23070Q2	Utilities and Assessments FY99	251	01OCT98	30SEP99	1
23070Q3	Utilities and Assessments FY00	251	01OCT99	29SEP00	1
23070Q4	Utilities and Assessments FY01	251	02OCT00	28SEP01	1
23070Q5	Utilities and Assessments FY02	250	01OCT01	30SEP02	1
23070Q6	Utilities and Assessments FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.03.05 General/Saltwell Operations Training					
23070R1	General Training FY98	127	01APR98	30SEP98	1
23070R2	General Training FY99	251	01OCT98	30SEP99	1
23070R3	General Training FY00	251	01OCT99	29SEP00	1
23070R4	General Training FY01	251	02OCT00	28SEP01	1
23070R5	General Training FY02	250	01OCT01	30SEP02	1
23070R6	General Training FY03	251	01OCT02	30SEP03	1
23072D1	Constraint Pumping Milestone to Complex Tanks	0		30APR01	22
23072D2	Constraint Pumping Milestone to TRU-Complex	0		30SEP02	10
1.01.02.01.04.39.04 Regulatory/Environmental Compliance					
1.01.02.01.04.39.04.01 FEB Support					
23070K1	Provide FEB Support FY98	127	01APR98	30SEP98	1
23070K2	Provide FEB Support FY99	251	01OCT98	30SEP99	1
23070K3	Provide FEB Support FY00	251	01OCT99	29SEP00	1
23070K4	Provide FEB Support FY01	251	02OCT00	28SEP01	1
23070K5	Provide FEB Support FY02	250	01OCT01	30SEP02	1
23070K6	Provide FEB Support FY03	251	01OCT02	30SEP03	1



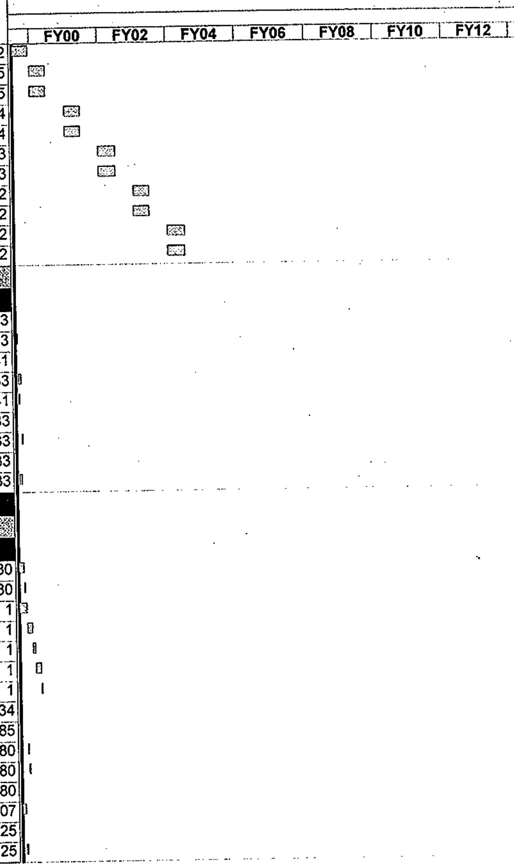
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.39.04.02 ESH&Q Oversight					
23070J1	Provide ESH&Q Support FY98	127	01APR98	30SEP98	0
23070J2	Provide ESH&Q Support FY99	251	01OCT98	30SEP99	0
23070J3	Provide ESH&Q Support FY00	251	01OCT99	29SEP00	0
23070J4	Provide ESH&Q Support FY01	251	02OCT00	28SEP01	0
23070J5	Provide ESH&Q Support FY02	251	01OCT01	01OCT02	0
23070J6	Provide ESH&Q Support FY03	251	02OCT02	01OCT03	0
1.01.02.01.04.39.04.05 Environmental Compliance					
23005A	Grab Sample	30	01APR98	12MAY98	222
23005B	Prep Test Plan, Lab Work/Analysis & Iss Report	60	01APR98	24JUN98	1,322
23005C	Prepare/Review/Submit Justification Ltr to RL	10	01APR98	14APR98	1,372
23010A	Appr to Co-Mingle Wst Non-Cmplx/Cmplx/Cmplx	251	13MAY98	12MAY99	222
23015B	Tier II SER Prep/SubTap Review/Tier III Blended	120	01APR98	21SEP98	1,257
23015C	Manager Approval	5	22SEP98	28SEP98	1,257
23015D	Tier III Comment Resolution	60	01APR98*	24JUN98	45
23015E	Issue SER	1	25JUN98	25JUN98	45
23025A	RL Approve Pumping of Watchlist Tanks	20	25JUN98	24JUL98	26
23030A	Prepare/Review & Issue WL Tnk Basis Ltr to RL	60	01APR98	24JUN98	26
23070F1	Environmental Compliance Support FY98	127	01APR98	30SEP98	1
23070F2	Environmental Compliance Support FY99	251	01OCT98	30SEP99	1
23070F3	Environmental Compliance Support FY00	251	01OCT99	29SEP00	1
23070F4	Environmental Compliance Support FY01	251	02OCT00	28SEP01	1
23070F5	Environmental Compliance Support FY02	250	01OCT01	30SEP02	1
23070F6	Environmental Compliance Support FY03	251	01OCT02	30SEP03	1
23075A	Gather Data for NOC Permitting	3	01APR98	03APR98	23
23075B1	Revise/Review <0.1 NOC	10	06APR98	17APR98	97
23075B2	<0.1 NOC Review by FDH	5	20APR98	24APR98	97
23075B3	<0.1 NOC Review by RL	5	27APR98	01MAY98	97
23075B4	<0.1 NOC Review Meetings	10	04MAY98	15MAY98	97
23075B5	<0.1 NOC Review by WDOH	40	18MAY98	15JUL98	1,309
23075C1	Write/Review SX NOC	20	06APR98	01MAY98	23
23075C2	SX NOC Review by FDH	5	04MAY98	08MAY98	23
23075C3	SX NOC Review by RL	5	11MAY98	15MAY98	23
23075C4	SX NOC Review Meetings	10	18MAY98	01JUN98	23
23075C5	SX NOC Review by WDOH	40	02JUN98	29JUL98	1,299
23075D1	Write/Review >0.1 NOC	20	06APR98	01MAY98	87
23075D2	>0.1 NOC Review by FDH	5	04MAY98	08MAY98	87
23075D3	>0.1 NOC Review by RL	5	11MAY98	15MAY98	87
23075D4	>0.1 NOC Review Meetings	10	18MAY98	01JUN98	87
23075D5	>0.1 NOC Review by WDOC	40	02JUN98	29JUL98	1,299
23075E1	Write/Review C-103 NOC	20	06APR98	01MAY98	526



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23075E2	C-103 NOC Review by FDH	5	04MAY98	08MAY98	526
23075E3	C-103 NOC Review by RL	5	11MAY98	15MAY98	526
23075E4	C-103 NOC Review Meetings	10	18MAY98	01JUN98	526
23075E5	C-103 NOC Review by WDOH	40	02JUN98	29JUL98	1,299
1.01.02.01.04.39.04.06 Corrective Action Tracking & Support					
23070C1	Corrective Action Tracking FY98	127	01APR98	30SEP98	1
23070C2	Corrective Action Tracking FY99	251	01OCT98	30SEP99	1
23070C3	Corrective Action Tracking FY00	251	01OCT99	29SEP00	1
23070C4	Corrective Action Tracking FY01	251	02OCT00	28SEP01	1
23070C5	Corrective Action Tracking FY02	250	01OCT01	30SEP02	1
23070C6	Corrective Action Tracking FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.04.07 Procedures/Safety Documentation					
23070P1	Review/Update Procedures/Safety Doc FY98	127	01APR98	30SEP98	1
23070P2	Review/Update Procedures/Safety Doc FY99	251	01OCT98	30SEP99	1
23070P3	Review/Update Procedures/Safety Doc FY00	251	01OCT99	29SEP00	1
23070P4	Review/Update Procedures/Safety Doc FY01	251	02OCT00	28SEP01	1
23070P5	Review/Update Procedures/Safety Doc FY02	250	01OCT01	30SEP02	1
23070P6	Review/Update Procedures/Safety Doc FY03	251	01OCT02	30SEP03	1
1.01.02.01.04.39.05 SST Stabilization Capital Equipment					
1.01.02.01.04.39.05.01 SST Stabil Capital Equip Procurement/Upgrade					
23055A	FGM Design and Procurement	251	01APR98	31MAR99	70
23057A	Design and Procure New PIC Skids	251	01APR98	31MAR99	477
23057B	Design and Upgrade Existing PIC Skids	251	01APR98	31MAR99	60
23090A	Tank - Design Exhausters Off-Site (6ea)	95	01APR98	14AUG98	190
23090B	Tank - Design Exhausters/Vent Sys On-Site	115	01APR98	14SEP98	0
23095A1	Procure Support Equipment	35	06JUL98	21AUG98	230
23095A2	Procure Bid and Award	75	06JUL98	19OCT98	190
23095A3	Fab Tie-In Assembly	15	12JUL99	30JUL99	1,047
23095A4	Fab Tie-In Assembly	15	11OCT00	31OCT00	731
23095A6	Receive Exhasuter Skids (2)	10	03MAY99*	14MAY99	57
23095A7	Receive Exhasuter Skids (2)	10	02AUG99*	13AUG99	56
23095A8	Receive Exhasuter Skids (2)	10	01NOV00*	14NOV00	13
23095B1	Procurement Bid	50	15SEP98	23NOV98	0
23095B2	Procure Supporting Equipment	35	24NOV98	18JAN99	15
23095B3	Procure GEMs/CAMs	50	24NOV98	08FEB99	0
23095B4	Fab Exhausters	30	28DEC98	08FEB99	0
23095B5	Test and Inspect	20	09FEB99	09MAR99	0
1.01.02.01.04.39.06 Maintain Emergency Pumping Capability					
1.01.02.01.04.39.06.01 Maintain Emergency Pumping Capability					
23060A	Maintain Emerg. Pumping Documentation FY98	120	01APR98	21SEP98	1,262



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23060B	Maintain Emerg. Pumping Equip/Calibrations	120	01APR98	21SEP98	1,262
23060C	Maintain Emerg. Pumping Documentation FY99	120	01OCT98*	25MAR99	1,135
23060D	Maintain Emerg. Pumping Equip/Calibrations	120	01OCT98*	25MAR99	1,135
23060E	Maintain Emerg. Pumping Documentation FY00	120	01OCT99*	24MAR00	884
23060F	Maintain Emerg. Pumping Equip/Calibrations	120	01OCT99*	24MAR00	884
23060G	Maintain Emerg. Pumping Documentation FY01	120	02OCT00*	26MAR01	633
23060H	Maintain Emerg. Pumping Equip/Calibrations	120	02OCT00*	26MAR01	633
23060J	Maintain Emerg. Pumping Documentation FY02	120	01OCT01*	26MAR02	382
23060K	Maintain Emerg. Pumping Equip/Calibrations	120	01OCT01*	26MAR02	382
23060M	Maintain Emerg. Pumping Documentation FY03	120	01OCT02*	25MAR03	132
23060N	Maintain Emerg. Pumping Equip/Calibrations	120	01OCT02*	25MAR03	132
1.01.02.01.04.39.07 Overground Transfer Lines					
1.01.02.01.04.39.07.01 Installation Overground Transf. Lines					
23066A	Walkdown For Overground Xfr LIne (OGT)	3	01APR98	03APR98	1,333
23066B	Write Installation ECNs	15	06APR98	24APR98	1,333
23066C	Fab ECN Jumpers/Cover Plates	10	06APR98	17APR98	1,341
23066D	OGT Work Package Planning Case 2	20	27APR98	22MAY98	1,333
23066E	Fab Pit Jumpers/Covers	20	20APR98	15MAY98	1,341
23066F	Perform In Shop Pressure Testing	3	26MAY98	28MAY98	1,333
23066G	Install OGT System Field Work	3	29MAY98	02JUN98	1,333
23066J	Perf Hydro Test Above Grnd Xfr Line	5	03JUN98	09JUN98	1,333
23066K	Procure Material	20	27APR98	22MAY98	1,333
1.01.02.01.04.40 SST 241-A Tank Farm Stabilization/Isolation					
1.01.02.01.04.40.01 Stabilize and Isolate Tank A-101					
1.01.02.01.04.40.01.01 Prepare Tank A-101 for Pumping					
23110G	Tank A-101 Instl Dsn - Dilution System	35	01APR98	19MAY98	80
23115C	Tank A-101 Fab Dilution System (1 ea)	15	20MAY98	10JUN98	80
23121A	Tank A-101 Eval Data to Other FG2 Tanks	56	01APR98	18JUN98	1
23123A	Contractor Submittal Coordinated with LNLL	42	19JUN98	19AUG98	1
23123B	Tier II Comment Res/SER Prep	21	20AUG98	18SEP98	1
23123C	Tier III Comment Res/SER Modification	42	21SEP98	17NOV98	1
23123D	Manager Approval	10	18NOV98	03DEC98	1
23130D	Tank A-101 FGM Perform OTP	3	01APR98	03APR98	134
23140G	Tank A-101 (OTP) Exhauster	6	19JUN98	26JUN98	85
23142A	Tank A-101 Dilution Sys Planning	10	11JUN98	24JUN98	80
23142B	Tank A-101 Stage Materials and Install	6	25JUN98	06JUL98	80
23142D	Tank A-101 Functional Test	1	07JUL98	07JUL98	80
23152C	Tank A-101 Upgr Infr - Leak Detectors	30	01APR98	12MAY98	107
23154A1	Tank A-101 Review/Verify Profile Sht Complete	3	01APR98	03APR98	125
23154A5	Tank A-101 Compl Compatability Compliance	6	13MAY98	20MAY98	125

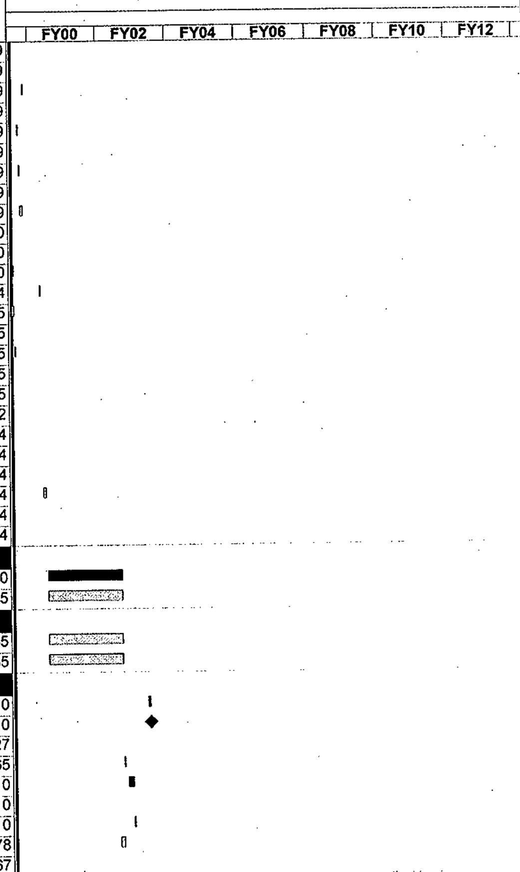


Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	FY00	FY02	FY04	FY06	FY08	FY10	FY12
23154A6	Tank A-101 Write/Review Issue White Paper	3	21MAY98	26MAY98	125							
23154A7	Tank A-101 Perform Assessment/Rvw/Approve	5	27MAY98	02JUN98	125							
23154A8	Tank A-101 Management review & approval	5	03JUN98	09JUN98	125							
23154B1	Tank A-101 Review ANOVA Results	2	01APR98	02APR98	125							
23154B2	Tank A-101 Gather Process Data (EVAP/FLOW	5	03APR98	09APR98	125							
23154B3	Tank A-101 Perform Calculations	5	10APR98	16APR98	125							
23154B4	Tank A-101 Prepare Appendix to SD	3	17APR98	21APR98	125							
23154B5	Tank A-101 Write Supporting Document	15	22APR98	12MAY98	125							
23156D	Tank A-101 Perform OTP	12	27APR98	12MAY98	107							
23156E	Tank A-101 OTP Closeout	10	22JUN98	07JUL98	80							
23162E	Tank A-101 Pit Jmpr/Mod Cover Blks	2	01APR98	02APR98	144							
23164B	Tank A-101 Stage/Prep Equipment	1	03APR98	03APR98	144							
23164C	Tank A-101 Perf Lance/Install Screen	4	08JUL98	13JUL98	80							
23164D	Tank A-101 Restoration	1	14JUL98	14JUL98	80							
23172A	Tank A-101 Write Xfr Procedure for SW Pumping	20	15JUL98	11AUG98	80							
23172B	Tank A-101 Perform Mgt Assessment Pre-Start	2	04DEC98	07DEC98	1							
23172C	Tank A-101 Perform Prereq's for SW Pumping	2	08DEC98	09DEC98	1							
1.01.02.01.04.40.01.02 Pump Tank A-101												
23172D1	Pump Tank A -101	1,003	10DEC98*	07SEP01	1							
23172D2	Tank A-101 Perf Weekly Flush during SW	690	10DEC98	07SEP01	517							
1.01.02.01.04.40.01.03 SWP System Maint & Operability Tank A-101												
23168A	Tank A-101 (Annual) CM	690	10DEC98	07SEP01	517							
23168B	Tank A-101 (Annual) PM	690	10DEC98	07SEP01	517							
1.01.02.01.04.40.01.04 Isolation & Intrusion Prevention Tank A-101												
23178A1	Tank A-101 Prepare WP for In-Tank Video	5	31AUG01	07SEP01	29							
23178A2	Tank A-101 Perform In-Tank Video	1	10SEP01	10SEP01	66							
23178B1	Tank A-101 Evaluate SW Pumping Data	60	18OCT01	16DEC01	1							
23178B2	Tank A-101 Evaluate In-Tank Video Data	2	14DEC01	17DEC01	0							
23178B3	Tank A-101 Prep Justif Letter/Declare Complete	10	18DEC01	04JAN02	0							
23180A	Tank A-101 Pit Isolation Design	30	27JUL01	07SEP01	79							
23180B	Tank A-101 Isolation Planning	10	11SEP01	24SEP01	68							
23180C	Tank A-101 Isolation Stage Equipment	10	07JAN02	18JAN02	0							
23180D	Tank A-101 Isolation Work	10	21JAN02	01FEB02	0							
1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102												
1.01.02.01.04.40.02.04 Isolation & Intrusion Prevention Tank A-102												
23085B1	Tank A-102 Pit Isolation Design	30	01APR98	12MAY98	1,312							
23085B2	Tank A-102 Isolation Planning	10	15APR98	28APR98	1,322							
23085B3	Tank A-102 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312							
23085B4	Tank A-102 Isolation Work	10	28MAY98	10JUN98	1,312							
23085B5	Tank A-102 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312							

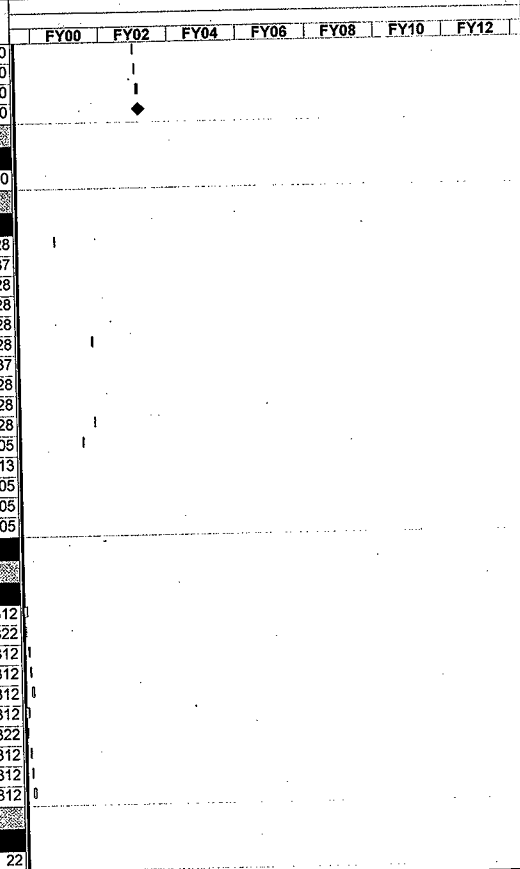
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.40.20 Tank Ventilation Sys 241-A Tank Farm					
1.01.02.01.04.40.20.01 Tank Ventilation Sys for 241-A Tank Farm					
23140E	Tank A-101 Installation & Tie-In	6	11JUN98	18JUN98	85
1.01.02.01.04.40.40 241-A Tank Farm Annual Hydro					
1.01.02.01.04.40.40.01 241-A Tank Farm Annual Hydro					
23174A	Farm A Annual Hydro - Planning (FY99)	15	01APR99*	21APR99	554
23174B	Farm A Annual Hydro - Stage Equipment (FY99)	4	01APR99	06APR99	565
23174C	Farm A Annual Hydro - Set Up (FY99)	5	22APR99	28APR99	554
23174D	Farm A Annual Hydro - Perform Hydro Test	3	29APR99	03MAY99	554
23174E	Farm A Annual Hydro - Reconf Pits/Restore	2	04MAY99	05MAY99	554
23174F	Farm A Annual Hydro - Planning (FY00)	15	05MAY00	25MAY00	554
23174G	Farm A Annual Hydro - Stage Equipment (FY00)	4	05MAY00	10MAY00	565
23174H	Farm A Annual Hydro - Set Up (FY00)	5	26MAY00	02JUN00	554
23174J	Farm A Annual Hydro - Perform Hydro Test	3	05JUN00	07JUN00	554
23174K	Farm A Annual Hydro - Reconf Pits/Restore	2	08JUN00	09JUN00	554
23174M	Farm A Annual Hydro - Planning (FY01)	15	12JUN01	02JUL01	554
23174N	Farm A Annual Hydro - Stage Equipment (FY01)	4	12JUN01	15JUN01	565
23174P	Farm A Annual Hydro - Set Up (FY01)	5	03JUL01	10JUL01	554
23174Q	Farm A Annual Hydro - Perform Hydro Test	3	11JUL01	13JUL01	554
23174R	Farm A Annual Hydro - Reconf Pits/Restore	2	16JUL01	17JUL01	554
1.01.02.01.04.41 SST 241-AX Tank Farm Stabilization/Isolation					
1.01.02.01.04.41.01 Stabilize and Isolate Tank AX-101					
1.01.02.01.04.41.01.01 Prepare Tank AX-101 for Pumping					
23210G	Tank AX-101 Instl Dsn - Dilution System	35	04NOV98*	28DEC98	4
23215C	Tank AX-101 Fab Dilution System (1)	15	29DEC98	19JAN99	4
23225D	Tank AX-101 Analyze Grab Sample	29	01APR98	11MAY98	149
23225E	Tank AX-101 Issue Lab Analysis Final Report	22	12MAY98	11JUN98	149
23225F	Tank AX-101 Enter Lab Data into TCD	1	12JUN98	12JUN98	149
23230A	Tank AX-101 FGM Planning	10	01APR98	14APR98	192
23230B	Tank AX-101 FGM Install	5	15APR98	21APR98	192
23230C	Tank AX-101 FGM Perform Calibration	2	27APR98	28APR98	192
23230D	Tank AX-101 FGM Perform OTP	3	22APR98	24APR98	192
23240A	Tank AX-101 Exhauster Planning	10	01APR98	14APR98	230
23240B	Tank AX-101 Stage Materials	5	10MAR99	16MAR99	0
23240G	Tank AX-101 (OTP) Exhauster	6	25MAR99	01APR99	0
23242A	Tank AX-101 Dilution Sys Planning	10	20JAN99	02FEB99	4
23242B	Tank AX-101 Stage Materials and Install	6	03FEB99	10FEB99	4
23242D	Tank AX-101 Functional Test	1	11FEB99	11FEB99	4
23245B	Tank AX-101 Upgrade/Install Test PIC	20	01APR98	28APR98	192
23254A1	Tank AX-101 Review/Verify Profile Sht Complete	3	15JUN98	17JUN98	149

FY00 FY02 FY04 FY06 FY08 FY10 FY12

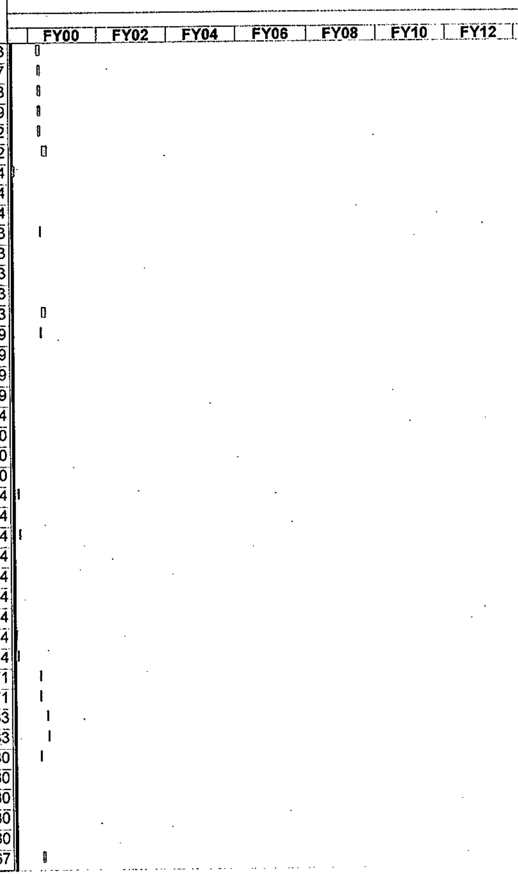
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23254A5	Tank AX-101 Compl Compatability Compliance	6	29JUL98	05AUG98	149
23254A6	Tank AX-101 Write/Review Issue White Paper	3	06AUG98	10AUG98	149
23254A7	Tank AX-101 Perform Assessment/Rvw/Approve	5	11AUG98	17AUG98	149
23254A8	Tank AX-101 Management review & approval	5	18AUG98	24AUG98	149
23254B1	Tank AX-101 Review ANOVA Results	2	15JUN98	16JUN98	149
23254B2	Tank AX-101 Gather Process Data	5	17JUN98	23JUN98	149
23254B3	Tank AX-101 Perform Calculations	5	24JUN98	30JUN98	149
23254B4	Tank AX-101 Prepare Appendix to SD	3	01JUL98	07JUL98	149
23254B5	Tank AX-101 Write Supporting Document	15	08JUL98	28JUL98	149
23256A	Tank AX-101 OTP Planning	10	01APR98	14APR98	190
23256B	Tank AX-101 Engr Planning OTP Saltwell Sys	10	01APR98	14APR98	190
23256D	Tank AX-101 Perform OTP	12	15APR98	30APR98	190
23256E	Tank AX-101 OTP Closeout	10	29JAN99	11FEB99	4
23262A	Tank AX-101 Pit Jmpr/Mod Cover Blks Planning	20	01APR98	28APR98	195
23262B	Tank AX-101 Pit Jmpr/Mod Cover Blks Stage	1	29APR98	29APR98	195
23262C	Tank AX-101 Pit Jmpr/Mod Cover Blks Field	3	30APR98	04MAY98	195
23262D	Tank AX-101 Pit Jmpr/Mod Cover Blks	1	05MAY98	05MAY98	195
23262E	Tank AX-101 Pit Jmpr/Mod Cover Blks	2	06MAY98	07MAY98	195
23264A	Tank AX-101 Work Planning	10	01APR98	14APR98	212
23264B	Tank AX-101 Stage/Prep Equipment	1	12FEB99	12FEB99	4
23264C	Tank AX-101 Perf Lance/Install Screen	4	16FEB99	19FEB99	4
23264D	Tank AX-101 Restoration	1	22FEB99	22FEB99	4
23272A	Tank AX-101 Write Xfr Procedure for SW	20	23FEB99	22MAR99	4
23272B	Tank AX-101 Perform Mgt Assessment Pre-Start	2	23MAR99	24MAR99	4
23272C	Tank AX-101 Perform Prereq's for SW Pumping	2	25MAR99	26MAR99	4
1.01.02.01.04.41.01.02 Pump Tank AX-101					
23272D1	Pump Tank AX-101	793	02APR99*	02JUN01	0
23272D2	Tank AX-101 Perf Weekly Flush during SW	545	02APR99	01JUN01	585
1.01.02.01.04.41.01.03 SWP System Maint & Operability Tank AX-101					
23268A	Tank AX-101 (Annual) CM	545	02APR99	01JUN01	585
23268B	Tank AX-101 (Annual) PM	545	02APR99	01JUN01	585
1.01.02.01.04.41.01.04 Isolation & Intrusion Prevention Tank AX-101					
23180E	Tank A-101 Isolation Complete Documentation	20	04FEB02	04MAR02	0
231MS	Tank A-101 Tank Stabilization/Isolation Compl	0		04MAR02	0
23278A1	Tank AX-101 Prepare WP for In-Tank Video	5	29MAY01	04JUN01	27
23278A2	Tank AX-101 Perform In-Tank Video	1	05JUN01	05JUN01	65
23278B1	Tank AX-101 Evaluate SW Pumping Data	60	13JUL01	10SEP01	0
23278B2	Tank AX-101 Evaluate In-Tank Video Data	2	07SEP01	10SEP01	0
23278B3	Tank AX-101 Prep Justif Letter/Declare	10	11SEP01	24SEP01	0
23280A	Tank AX-101 Pit Isolation Design	30	23APR01	04JUN01	78
23280B	Tank AX-101 Isolation Planning	10	06JUN01	19JUN01	67



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23280C	Tank AX-101 Isolation Stage Equipment	10	25SEP01	08OCT01	0
23280D	Tank AX-101 Isolation Work	10	09OCT01	22OCT01	0
23280E	Tank AX-101 Isolation Complete Documentation	20	23OCT01	19NOV01	0
232MS	Tank AX-101 Tank Stabilization/Isolation Compl	0		19NOV01	0
1.01.02.01.04.41.20 Tank Ventilation Sys 241-AX Tank Farm					
1.01.02.01.04.41.20.01 Tank Ventilation Sys for 241-AX Tank Farm					
23240E	Tank AX-101 Installation & Tie-In	6	17MAR99	24MAR99	0
1.01.02.01.04.41.40 241-AX Tank Farm Annual Hydro					
1.01.02.01.04.41.40.01 241-AX Tank Farm Annual Hydro					
23274A	Farm AX Annual Hydro - Planning (FY99)	10	03MAY99*	14MAY99	828
23274B	Farm AX Annual Hydro - Stage Equipment	1	03MAY99	03MAY99	837
23274C	Farm AX Annual Hydro - Set Up (FY99)	2	17MAY99	18MAY99	828
23274D	Farm AX Annual Hydro - Perform Hydro Test	2	19MAY99	20MAY99	828
23274E	Farm AX Annual Hydro - Reconf Pits/Restore	1	21MAY99	21MAY99	828
23274F	Farm AX Annual Hydro - Planning (FY00)	10	23MAY00	06JUN00	828
23274G	Farm AX Annual Hydro - Stage Equipment	1	23MAY00	23MAY00	837
23274H	Farm AX Annual Hydro - Set Up (FY00)	2	07JUN00	08JUN00	828
23274J	Farm AX Annual Hydro - Perform Hydro Test	2	09JUN00	12JUN00	828
23274K	Farm AX Annual Hydro - Reconf Pits/Restore	1	13JUN00	13JUN00	828
23374A	Farm BY Annual Hydro - Planning (FY01)	10	28JAN00	10FEB00	905
23374B	Farm BY Annual Hydro - Stage Equipment	2	28JAN00	31JAN00	913
23374C	Farm BY Annual Hydro - Set Up (FY01)	3	11FEB00	15FEB00	905
23374D	Farm BY Annual Hydro - Perform Hydro Test	3	16FEB00	18FEB00	905
23374E	Farm BY Annual Hydro - Reconf Pits/Restore	3	22FEB00	24FEB00	905
1.01.02.01.04.43 SST 241-BY Tank Farm Stabilization/Isolation					
1.01.02.01.04.43.03 Stabilize and Isolate Tank BY-103					
1.01.02.01.04.43.03.04 Isolation & Intrusion Prevention Tank BY-103					
23085C1	Tank BY-102 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085C2	Tank BY-102 Isolation Planning	10	15APR98	28APR98	1,322
23085C3	Tank BY-102 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085C4	Tank BY-102 Isolation Work	10	28MAY98	10JUN98	1,312
23085C5	Tank BY-102 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
23085D1	Tank BY-103 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085D2	Tank BY-103 Isolation Planning	10	15APR98	28APR98	1,322
23085D3	Tank BY-103 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085D4	Tank BY-103 Isolation Work	10	28MAY98	10JUN98	1,312
23085D5	Tank BY-103 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.43.05 Stabilize and Isolate Tank BY-105					
1.01.02.01.04.43.05.01 Prepare Tank BY-105 for Pumping					
23305C	Tank BY-105 Per Tank Walkdown	5	23DEC98*	31DEC98	22



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23310C	BY-105 Instl Dsn - Upgr WFIE	30	23DEC98	05FEB99	33
23310D	Tank BY-105 Instl Dsn - Modify Cover Blks	25	04JAN99	05FEB99	67
23310E	Tank BY-105 Instl Dsn - Media FG Monitor	25	04JAN99	05FEB99	53
23310K	Tank BY-105 Instl Dsn - Instl Dilution Sys	25	04JAN99	05FEB99	69
23310L	Tank BY-105 Instl Dsn - Install Pump Jumper	30	04JAN99	12FEB99	22
23315B	BY-105 New Pump Jumper (1 ea)	40	16FEB99	12APR99	22
23320A	Tank BY-105 Plan/Modify Pump	15	01APR98	21APR98	264
23320B	Tank BY-105 Plan Run-In	10	01APR98	14APR98	264
23320C	Tank BY-105 Pump Run-In	3	15APR98	17APR98	264
23330A	Tank BY-105 FGM Planning	10	25JAN99	05FEB99	53
23330B	Tank BY-105 FGM Install	5	08FEB99	12FEB99	53
23330C	Tank BY-105 FGM Perform Calibration	2	19FEB99	22FEB99	53
23330D	Tank BY-105 FGM Perform OTP	3	16FEB99	18FEB99	53
23345C	Tank BY-105 Upgrade/WFIE Cabinet	30	08FEB99	22MAR99	33
23350A	Tank BY-105 Saltwell Screen Planning	10	25JAN99	05FEB99	69
23350B	Tank BY-105 Saltwell Screen - Stage & Prep	1	08FEB99	08FEB99	69
23350C	Tank BY-105 Saltwell Screen - Install	2	09FEB99	10FEB99	69
23350D	Tank BY-105 Saltwell Screen - Restoration	1	11FEB99	11FEB99	69
23354A1	Tank BY-105 Review/Verify Profile Sht Complete	3	01APR98	03APR98	244
23354A2	Tank BY-105 Calc Inputs for Time 25% LFL	5	06APR98	10APR98	270
23354A3	Tank BY-105 Calc Inputs for Time 25% LFL	2	13APR98	14APR98	270
23354A4	Tank BY-105 Determn DCRT Time to 25% LFL	2	13APR98	14APR98	270
23354A5	Tank BY-105 Compl Compatability Compliance	6	13MAY98	20MAY98	244
23354A6	Tank BY-105 Write/Review Issue White Paper	3	21MAY98	26MAY98	244
23354A7	Tank BY-105 Perform Assessment/Rvw/Approve	5	27MAY98	02JUN98	244
23354A8	Tank BY-105 Management review & approval	5	03JUN98	09JUN98	244
23354B1	Tank BY-105 Review ANOVA Results	2	01APR98	02APR98	244
23354B2	Tank BY-105 Gather Process Data	5	03APR98	09APR98	244
23354B3	Tank BY-105 Perform Calculations	5	10APR98	16APR98	244
23354B4	Tank BY-105 Prepare Appendix to SD	3	17APR98	21APR98	244
23354B5	Tank BY-105 Write Supporting Document	15	22APR98	12MAY98	244
23356A	Tank BY-105 OTP Planning	10	23DEC98	08JAN99	71
23356B	Tank BY-105 Engr Planning OTP Saltwell Sys	10	23DEC98	08JAN99	71
23356D	Tank BY-105 Perform OTP	12	05MAR99	22MAR99	33
23356E	Tank BY-105 OTP Closeout	10	23MAR99	05APR99	33
23360A	Tank BY-105 Hydro - Planning (1 Xfr Line)	10	23DEC98	08JAN99	80
23360B	Tank BY-105 Hydro - Stage Equipment	1	11JAN99	11JAN99	80
23360C	Tank BY-105 Hydro - Set Up	4	12JAN99	15JAN99	80
23360D	Tank BY-105 Hydro - Perform Hydro Test	3	18JAN99	20JAN99	80
23360E	Tank BY-105 Hydro - Reconfig Pits/Restore	5	21JAN99	27JAN99	80
23362A	Tank BY-105 Pit Jmpr/Mod Cover Blks Planning	20	11JAN99	05FEB99	67

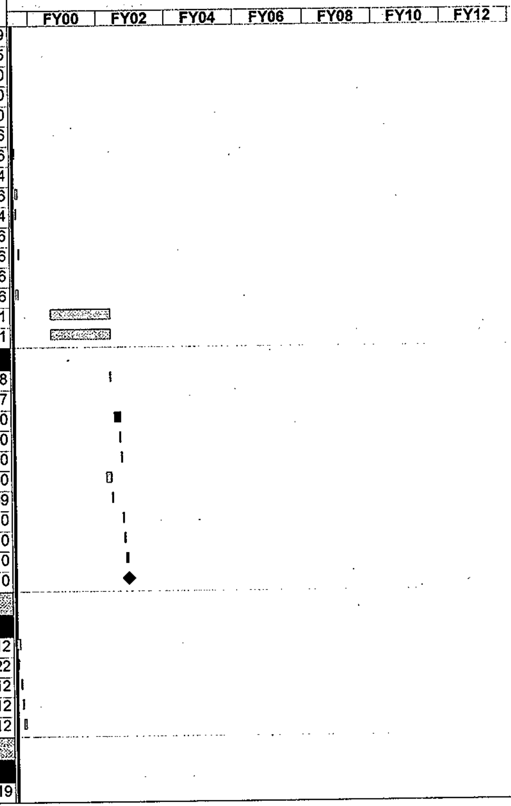


Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23362B	Tank BY-105 Pit Jmpr/Mod Cover Blks Stage	1	13APR99	13APR99	22
23362C	Tank BY-105 Pit Jmpr/Mod Cover Blks Field	3	14APR99	16APR99	22
23362D	Tank BY-105 Pit Jmpr/Mod Cover Blks	1	19APR99	19APR99	22
23362E	Tank BY-105 Pit Jmpr/Mod Cover Blks	2	20APR99	21APR99	22
23364A	Tank BY-105 Work Planning	10	23DEC98	08JAN99	93
23364B	Tank BY-105 Stage/Prep Equipment	1	06APR99	06APR99	33
23364C	Tank BY-105 Perf Lance/Install Screen	4	22APR99	27APR99	22
23364D	Tank BY-105 Restoration	1	28APR99	28APR99	22
23372A	Tank BY-105 Write Xfr Procedure for SW	20	23FEB99	22MAR99	47
23372B	Tank BY-105 Perform Mgt Assessment Pre-Start	2	27APR99	28APR99	22
23372C	Tank BY-105 Perform Prereq's for SW Pumping	2	29APR99	30APR99	22
1.01.02.01.04.43.05.02 Pump Tank BY-105					
23372D1	Pump Tank BY-105	458	01JUN99*	31AUG00	2
23372D2	Tank BY-105 Perf Weekly Flush during SW	316	01JUN99	31AUG00	773
1.01.02.01.04.43.05.03 SWP System Maint & Operability Tank BY-105					
23368A	Tank BY-105 (Annual) CM	316	01JUN99	31AUG00	773
23368D	BY-105 Saltwell System PMs (Annual)	316	01JUN99	31AUG00	773
1.01.02.01.04.43.05.04 Isolation & Intrusion Prevention Tank BY-105					
23378A1	Tank BY-105 Prepare WP for In-Tank Video	5	25AUG00	31AUG00	29
23378A2	Tank BY-105 Perform In-Tank Video	1	01SEP00	01SEP00	66
23378B1	Tank BY-105 Evaluate SW Pumping Data	60	11OCT00	09DEC00	2
23378B2	Tank BY-105 Evaluate In-Tank Video Data	2	08DEC00	11DEC00	0
23378B3	Tank BY-105 Prep Justif Letter/Declare	10	12DEC00	27DEC00	0
23380A	Tank BY-105 Pit Isolation Design	30	21JUL00	31AUG00	79
23380B	Tank BY-105 Isolation Planning	10	05SEP00	18SEP00	68
23380C	Tank BY-105 Isolation Stage Equipment	10	28DEC00	11JAN01	0
23380D	Tank BY-105 Isolation Work	10	12JAN01	25JAN01	0
23380E	Tank BY-105 Isolation Complete Documentation	20	26JAN01	23FEB01	0
233MS	Tank BY-105 Tank Stabilization/Isolation Compl	0		23FEB01	0
1.01.02.01.04.43.06 Stabilize and Isolate Tank BY-106					
1.01.02.01.04.43.06.01 Prepare Tank BY-106 for Pumping					
23472A	Tank BY-106 Write Xfr Procedure for SW	20	20JUL98	14AUG98	174
23472B	Tank BY-106 Perform Mgt Assessment Pre-Start	2	31MAR99	01APR99	19
23472C	Tank BY-106 Perform Prereq's for SW Pumping	2	02APR99	05APR99	19
1.01.02.01.04.43.06.02 Pump Tank BY-106					
23472D1	Pump Tank BY-106	639	01MAY99*	28JAN01	0
23472D2	Tank BY-106 Perf Weekly Flush during SW	438	03MAY99	30JAN01	671
1.01.02.01.04.43.06.03 SWP System Maint & Operability Tank BY-106					
23410C	BY-106 Instl Dsn - Upgr WFIE	30	01APR98	12MAY98	195
23410E	Tank BY-106 Instl Dsn - Media FG Monitor	25	01APR98	05MAY98	220

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23410F	Tank BY-106 Instl Dsn - Upgr Leak Detect	35	01APR98	19MAY98	190
23410L	Tank BY-106 Instl Dsn - Install Pump Jumper	30	01APR98	12MAY98	160
23415B	BY-106 New Pump Jumper (1 ea)	40	13MAY98	10JUL98	160
23420A	Tank BY-106 Plan/Modify Pump	15	13JUL98	31JUL98	160
23420B	Tank BY-106 Plan Run-In	10	13JUL98	24JUL98	160
23420C	Tank BY-106 Pump Run-In	3	27JUL98	29JUL98	160
23430A	Tank BY-106 FGM Planning	10	22APR98	05MAY98	220
23430B	Tank BY-106 FGM Install	5	06MAY98	12MAY98	220
23430C	Tank BY-106 FGM Perform Calibration	2	18MAY98	19MAY98	220
23430D	Tank BY-106 FGM Perform OTP	3	13MAY98	15MAY98	220
23440A	Tank BY-106 Exhauster Planning	10	01APR98	14APR98	249
23440B	Tank BY-106 Stage Materials	5	10MAR99	16MAR99	19
23440G	Tank BY-106 (OTP) Exhauster	6	25MAR99	01APR99	19
23445C	Tank BY-106 Upgrade/WFIE Cabinet	30	20MAY98	01JUL98	190
23452C	Tank BY-106 Upgr Infr - Leak Detectors	30	20MAY98	01JUL98	190
23454A1	Tank BY-106 Review/Verify Profile Sht Complete	3	01APR98	03APR98	222
23454A2	Tank BY-106 Calc Inputs for Time 25% LFL	5	06APR98	10APR98	248
23454A3	Tank BY-106 Calc Inputs for Time 25% LFL	2	13APR98	14APR98	248
23454A4	Tank BY-106 Determn DCRT Time to 25% LFL	2	13APR98	14APR98	248
23454A5	Tank BY-106 Compl Compatability Compliance	6	13MAY98	20MAY98	222
23454A6	Tank BY-106 Write/Review Issue White Paper	3	21MAY98	26MAY98	222
23454A7	Tank BY-106 Perform Assessment/Rvw/Approve	5	27MAY98	02JUN98	222
23454A8	Tank BY-106 Management review & approval	5	03JUN98	09JUN98	222
23454B1	Tank BY-106 Review ANOVA Results	2	01APR98	02APR98	222
23454B2	Tank BY-106 Gather Process Data	5	03APR98	09APR98	222
23454B3	Tank BY-106 Perform Calculations	5	10APR98	16APR98	222
23454B4	Tank BY-106 Prepare Appendix to SD	3	17APR98	21APR98	222
23454B5	Tank BY-106 Write Supporting Document	15	22APR98	12MAY98	222
23456A	Tank BY-106 OTP Planning	10	01APR98	14APR98	233
23456B	Tank BY-106 Engr Planning OTP Saltwell Sys	10	01APR98	14APR98	233
23456D	Tank BY-106 Perform OTP	12	30JUL98	14AUG98	160
23456E	Tank BY-106 OTP Closeout	10	17AUG98	28AUG98	160
23460A	Tank BY-106 Hydro - Planning (1 Xfr Line)	10	01APR98	14APR98	242
23460B	Tank BY-106 Hydro - Stage Equipment	1	15APR98	15APR98	242
23460C	Tank BY-106 Hydro - Set Up	4	16APR98	21APR98	242
23460D	Tank BY-106 Hydro - Perform Hydro Test	3	22APR98	24APR98	242
23460E	Tank BY-106 Hydro - Reconfig Pits/Restore	5	03JUN98	09JUN98	216
23462A	Tank BY-106 Pit Jmpr/Mod Cover Blks Planning	20	01APR98	28APR98	239
23462B	Tank BY-106 Pit Jmpr/Mod Cover Blks Stage	1	13JUL98	13JUL98	189
23462C	Tank BY-106 Pit Jmpr/Mod Cover Blks Field	3	14JUL98	16JUL98	189
23462D	Tank BY-106 Pit Jmpr/Mod Cover Blks	1	17JUL98	17JUL98	189

FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23462E	Tank BY-106 Pit Jmpr/Mod Cover Blks	2	20JUL98	21JUL98	189
23464A	Tank BY-106 Work Planning	10	01APR98	14APR98	255
23464B	Tank BY-106 Stage/Prep Equipment	1	31AUG98	31AUG98	160
23464C	Tank BY-106 Perf Lance/Install Screen	4	01SEP98	04SEP98	160
23464D	Tank BY-106 Restoration	1	08SEP98	08SEP98	160
23466A	BY-106 Walkdn for Overground Xfr Line (OGT)	3	01APR98	03APR98	216
23466B	BY-106 Write Installation ECNs	15	06APR98	24APR98	216
23466C	BY-106 Fab ECN Jumpers/Cover Plates	10	06APR98	17APR98	224
23466D	BY-106 OGT Work Pkg Planning Case 2	20	27APR98	22MAY98	216
23466E	BY-106 Fab Pit Jumpers/Covers	20	20APR98	15MAY98	224
23466F	BY-106 Perform In Shop Pressure Testing	3	26MAY98	28MAY98	216
23466G	Tank BY-106 Install OGT System - Field Work	3	29MAY98	02JUN98	216
23466J	BY-106 Perf Hydro Test Above Grnd Xfr Line	5	03JUN98	09JUN98	216
23466K	BY-106 Procure Material	20	27APR98	22MAY98	216
23468A	Tank BY-106 (Annual) CM	438	03MAY99	30JAN01	671
23468B	Tank BY-106 (Annual) PM	438	03MAY99	30JAN01	671
1.01.02.01.04.43.06.04 Isolation & Intrusion Prevention Tank BY-106					
23478A1	Tank BY-106 Prepare WP for In-Tank Video	5	23JAN01	29JAN01	28
23478A2	Tank BY-106 Perform In-Tank Video	1	30JAN01	30JAN01	67
23478B1	Tank BY-106 Evaluate SW Pumping Data	60	10MAR01	08MAY01	0
23478B2	Tank BY-106 Evaluate In-Tank Video Data	2	07MAY01	08MAY01	0
23478B3	Tank BY-106 Prep Justif Letter/Declare	10	09MAY01	22MAY01	0
23480A	Tank BY-106 Pit Isolation Design	30	14DEC00	29JAN01	80
23480B	Tank BY-106 Isolation Planning	10	31JAN01	13FEB01	69
23480C	Tank BY-106 Isolation Stage Equipment	10	23MAY01	06JUN01	0
23480D	Tank BY-106 Isolation Work	10	07JUN01	20JUN01	0
23480E	Tank BY-106 Isolation Complete Documentation	20	21JUN01	19JUL01	0
234MS	Tank BY-106 Tank Stabilization/Isolation Compl	0		19JUL01	0
1.01.02.01.04.43.09 Stabilize and Isolate Tank BY-109					
1.01.02.01.04.43.09.04 Isolation & Intrusion Prevention Tank BY-109					
23085E1	Tank BY-109 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085E2	Tank BY-109 Isolation Planning	10	15APR98	28APR98	1,322
23085E3	Tank BY-109 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085E4	Tank BY-109 Isolation Work	10	28MAY98	10JUN98	1,312
23085E5	Tank BY-109 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.43.20 Tank Ventilation Sys SST 241-BX Tank Farm					
1.01.02.01.04.43.20.01 Tank Ventilation Sys SST 241-BX Tank Farm					
23440E	Tank BY-106 Installation & Tie-In	6	17MAR99	24MAR99	19

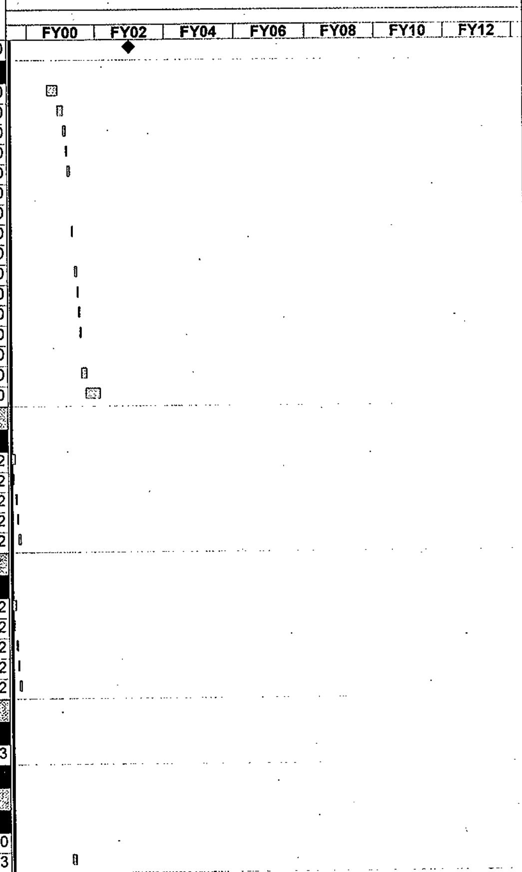


Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.43.30 DCRT 244-BX for SST 241-BY Tank Farm					
1.01.02.01.04.43.30.01 DCRT 244-BX for SST 241-BY Tank Farm					
23432A	Tank BY-106 Prepare WP for DCRT PM's &	438	03MAY99	30JAN01	671
23432B1	Tank BY-106 Perf Preventative Mainte on DCRT	438	03MAY99	30JAN01	671
23432B2	Tank BY-106 Perf Corrective Maintenance on	438	03MAY99	30JAN01	671
D1 47A	DCRT 244-BX for SST 241-BY Tank Farm	436*	03MAY99	26JAN01	0
1.01.02.01.04.44 SST 241-C Tank Farm Stabilization/Isolation					
1.01.02.01.04.44.03 Stabilize and Isolate Tank C-103					
1.01.02.01.04.44.03.01 Prepare Tank C-103 for Pumping					
23505A	C-103 Kick off Meeting	1	03MAY99*	03MAY99	30
23505B	C-103 Farm Walkdown	10	04MAY99	17MAY99	30
23505C	Tank C-103 Per Tank Walkdown	5	04MAY99	10MAY99	326
23510B	Tank C-103 Instl Dsn - Upgr Pump/Instr Ctrl Skid	25	04MAY99	08JUN99	354
23510D	Tank C-103 Instl Dsn - Modify Cover Blks	25	18MAY99	22JUN99	367
23510E	Tank C-103 Instl Dsn - Media FG Monitor (2)	25	18MAY99	22JUN99	354
23510F	Tank C-103 Instl Dsn - Upgr Leak Detect	35	18MAY99	08JUL99	324
23510L	Tank C-103 Instl Dsn - Install Pump Jumper	30	18MAY99	29JUN99	321
23520A	Tank C-103 Plan/Modify Pump	15	06AUG99	26AUG99	321
23520B	Tank C-103 Plan Run-In	10	06AUG99	19AUG99	321
23520C	Tank C-103 Pump Run-In	3	20AUG99	24AUG99	321
23530A	Tank C-103 FGM Planning (2)	10	09JUN99	22JUN99	354
23530B	Tank C-103 FGM Install (2)	5	27JUL99	02AUG99	332
23530C	Tank C-103 FGM Perform Calibration (2)	2	06AUG99	09AUG99	332
23530D	Tank C-103 FGM Perform OTP (2)	3	03AUG99	05AUG99	332
23540A	Tank C-103 Exhauster Planning	10	04MAY99	17MAY99	395
23540B	Tank C-103 Stage Materials	5	15NOV00	21NOV00	13
23540G	Tank C-103 (OTP) Exhauster	6	04DEC00	11DEC00	13
23545B	Tank C-103 Upgrade/Install Test PIC	20	23JUL99	19AUG99	324
23552C	Tank C-103 Upgr Infr - Leak Detectors (3)	30	09JUL99	19AUG99	324
23554A1	Tank C-103 Review/Verify Profile Sht Complete	3	04MAY99	06MAY99	366
23554A2	Tank C-103 Calc Inputs for Time 25% LFL	5	07MAY99	13MAY99	392
23554A3	Tank C-103 Calc Inputs for Time 25% LFL	2	14MAY99	17MAY99	392
23554A4	Tank C-103 Determn DCRT Time to 25% LFL	2	14MAY99	17MAY99	392
23554A5	Tank C-103 Compl Compatability Compliance	6	16JUN99	23JUN99	366
23554A6	Tank C-103 Write/Review Issue White Paper	3	24JUN99	28JUN99	366
23554A7	Tank C-103 Perform Assessment/Rvw/Approve	5	29JUN99	07JUL99	366
23554A8	Tank C-103 Management review & approval	5	08JUL99	14JUL99	366
23554B1	Tank C-103 Review ANOVA Results	2	04MAY99	05MAY99	366
23554B2	Tank C-103 Gather Process Data (EVAP/FLOW	5	06MAY99	12MAY99	366
23554B3	Tank C-103 Perform Calculations	5	13MAY99	19MAY99	366

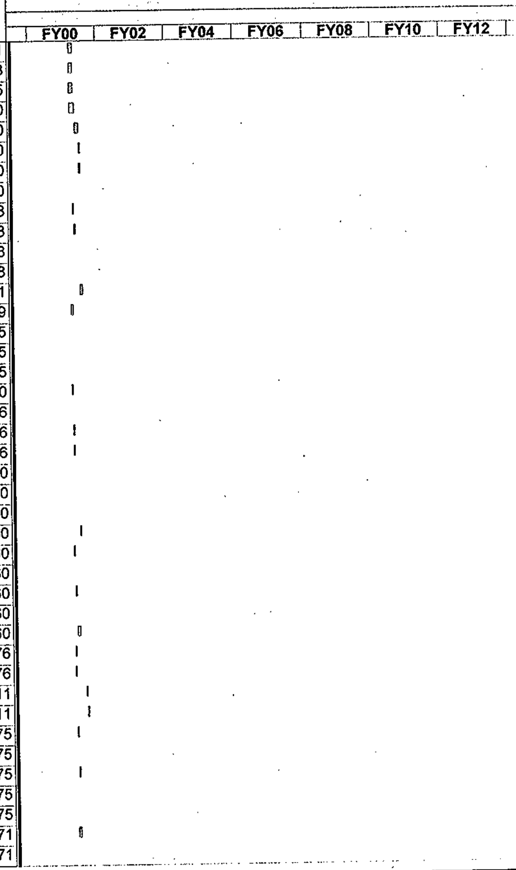
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23554B4	Tank C-103 Prepare Appendix to SD	3	20MAY99	24MAY99	366
23554B5	Tank C-103 Write Supporting Document	15	25MAY99	15JUN99	366
23556A	Tank C-103 OTP Planning	10	04MAY99	17MAY99	377
23556B	Tank C-103 Engr Planning OTP Saltwell Sys	10	04MAY99	17MAY99	377
23556D	Tank C-103 Perform OTP	12	09AUG99	24AUG99	321
23556E	Tank C-103 OTP Closeout	10	25AUG99	08SEP99	321
23560A	Tank C-103 Hydro - Planning (3 Xfr Line)	10	04MAY99	17MAY99	386
23560B	Tank C-103 Hydro - Stage Equipment (3)	1	18MAY99	18MAY99	386
23560C	Tank C-103 Hydro - Set Up (3)	4	19MAY99	24MAY99	386
23560D	Tank C-103 Hydro - Perform Hydro Test (3)	3	25MAY99	27MAY99	386
23560E	Tank C-103 Hydro - Reconfig Pits/Restore (3)	5	28MAY99	04JUN99	386
23562A	Tank C-103 Pit Jmpr/Mod Cover Blks Planning	20	25MAY99	22JUN99	367
23562B	Tank C-103 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	23JUN99	23JUN99	367
23562C	Tank C-103 Pit Jmpr/Mod Cover Blks Field Work	3	24JUN99	28JUN99	367
23562D	Tank C-103 Pit Jmpr/Mod Cover Blks	1	29JUN99	29JUN99	367
23562E	Tank C-103 Pit Jmpr/Mod Cover Blks	2	30JUN99	01JUL99	367
23564A	Tank C-103 Work Planning	10	04MAY99	17MAY99	399
23564B	Tank C-103 Stage/Prep Equipment	1	09SEP99	09SEP99	321
23564C	Tank C-103 Perf Lance/Install Screen	4	10SEP99	15SEP99	321
23564D	Tank C-103 Restoration	1	16SEP99	16SEP99	321
23572A	Tank C-103 Write Xfr Procedure for SW Pumping	20	04MAY99	01JUN99	393
23572B	Tank C-103 Perform Mgt Assessment Pre-Start	2	09NOV00	10NOV00	30
23572C	Tank C-103 Perform Prereq's for SW Pumping	2	13NOV00	14NOV00	30
1.01.02.01.04.44.03.02 Pump Tank C-103					
23572D1	Pump Tank C-103	88	01JAN01*	29MAR01	2
23572D2	Tank C-103 Perf Weekly Flush during SW	61	02JAN01	28MAR01	631
1.01.02.01.04.44.03.03 SWP System Maint & Operability Tank C-103					
23515B	C-103 New Pump Jumper (1 ea)	40	30JUN99	26AUG99	321
23568A	Tank C-103 (Annual) CM	61	02JAN01	28MAR01	631
23568B	Tank C-103 (Annual) PM	61	02JAN01	28MAR01	631
1.01.02.01.04.44.03.04 Isolation & Intrusion Prevention Tank C-103					
23578A1	Tank C-103 Prepare WP for In-Tank Video	5	23MAR01	29MAR01	30
23578A2	Tank C-103 Perform In-Tank Video	1	30MAR01	30MAR01	67
23578B1	Tank C-103 Evaluate SW Pumping Data	60	09MAY01	07JUL01	2
23578B2	Tank C-103 Evaluate In-Tank Video Data	2	06JUL01	09JUL01	0
23578B3	Tank C-103 Prep Justif Letter/Declare Complete	10	10JUL01	23JUL01	0
23580A	Tank C-103 Pit Isolation Design	30	15FEB01	29MAR01	80
23580B	Tank C-103 Isolation Planning	10	02APR01	13APR01	69
23580C	Tank C-103 Isolation Stage Equipment	10	24JUL01	06AUG01	0
23580D	Tank C-103 Isolation Work	10	07AUG01	20AUG01	0
23580E	Tank C-103 Isolation Complete Documentation	20	21AUG01	18SEP01	0

FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
235MS	Tank C-103 Tank Stabilization/Isolation CompL	0		18SEP01	0
1.01.02.01.04.44.03.05 Remove & Dispose Organics in Tank C-103					
23511A	Tank C-103 Design/Fab/Testing	80	04MAY99	26AUG99	30
23511B	Tank C-103 Safety Analysis and Eviron	40	27AUG99	22OCT99	30
23513A	Tier II Review (AB Chgs & Technical Content)	20	25OCT99	19NOV99	30
23513B	Contract & Submit Tier IIB Review	10	22NOV99	07DEC99	30
23513C	Tier IIB Review	20	08DEC99	07JAN00	30
23513D	Comment Resolution	10	10JAN00	21JAN00	30
23513E	Document Revision	10	24JAN00	04FEB00	30
23513F	Write Tier II SER	15	17JAN00	04FEB00	30
23513G	Transmit to Tier III	5	07FEB00	11FEB00	30
23513H	Tier III Review	20	14FEB00	13MAR00	30
23513I	Document Revision	10	14MAR00	27MAR00	30
23513J	SER Revision	5	28MAR00	03APR00	30
23513K	Two Weeks for J. Wagoner Approval	10	04APR00	17APR00	30
23513L	Transmit Acceptance to Contractor	5	18APR00	24APR00	30
23514A	Tank C-103 Facility Modifications	35	25APR00	13JUN00	30
23514B	Tank C-103 Readiness Rvw/Pumping Ops/Eqpt	115	31MAY00	10NOV00	30
1.01.02.01.04.44.05 Stabilize and Isolate Tank C-105					
1.01.02.01.04.44.05.04 Isolation & Intrusion Prevention Tank C-105					
23085F1	Tank C-105 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085F2	Tank C-105 Isolation Planning	10	15APR98	28APR98	1,322
23085F3	Tank C-105 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085F4	Tank C-105 Isolation Work	10	28MAY98	10JUN98	1,312
23085F5	Tank C-105 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.44.06 Stabilize and Isolate Tank C-106					
1.01.02.01.04.44.06.04 Isolation & Intrusion Prevention Tank C-106					
23085G1	Tank C-106 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085G2	Tank C-106 Isolation Planning	10	15APR98	28APR98	1,322
23085G3	Tank C-106 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085G4	Tank C-106 Isolation Work	10	28MAY98	10JUN98	1,312
23085G5	Tank C-106 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.44.20 Tank Ventilation Sys SST 241-C Tank Farm					
1.01.02.01.04.44.20.01 Tank Ventilation Sys SST 241-C Tank Farm					
23540E	Tank C-103 Installation & Tie-In	6	22NOV00	01DEC00	13
1.01.02.01.04.45 SST 241-S Tank Farm Stabilization/Isolation					
1.01.02.01.04.45.01 Stabilize and Isolate Tank S-101					
1.01.02.01.04.45.01.01 Prepare Tank S-101 for Pumping					
23A05C	Tank S-101 Per Tank Walkdown	5	16DEC99*	22DEC99	20
23A10B	Tank S-101 Instl Dsn - Upgr Pump/Instr Ctrl Skid	25	16DEC99	24JAN00	53



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23A10D	Tank S-101 Prep/Appr ECN Cover Block Modif.	25	23DEC99	31JAN00	71
23A10E	Tank S-101 Prep Dsn Media to Install FG	25	23DEC99	31JAN00	58
23A10K	Tank S-101 Instl Dsn - SWP Screen	25	23DEC99	31JAN00	75
23A10L	Tank S-101 Instl Dsn - Install Pump Jumper	30	23DEC99	07FEB00	20
23A15A	Tank S-101 Mod Existing Pump Jumper (1 ea)	30	08FEB00	21MAR00	20
23A20A	Tank S-101 Plan/Modify Pump	15	22MAR00	11APR00	20
23A20B	Tank S-101 Plan Run-In	10	22MAR00	04APR00	20
23A20C	Tank S-101 Pump Run-In	3	05APR00	07APR00	20
23A30A	Tank S-101 FGM Planning	10	18JAN00	31JAN00	58
23A30B	Tank S-101 FGM Install	5	01FEB00	07FEB00	58
23A30C	Tank S-101 FGM Perform Calibration	2	11FEB00	14FEB00	58
23A30D	Tank S-101 FGM Perform OTP	3	08FEB00	10FEB00	58
23A45B	Tank S-101 Upgrade/Install Test PIC	20	24MAR00	20APR00	11
23A50A	Tank S-101 Saltwell Screen Planning	10	23DEC99	10JAN00	89
23A50B	Tank S-101 Saltwell Screen - Stage & Prep	1	31JAN00	31JAN00	75
23A50C	Tank S-101 Saltwell Screen - Install	2	01FEB00	02FEB00	75
23A50D	Tank S-101 Saltwell Screen - Restoration	1	03FEB00	03FEB00	75
23A54A1	Tank S-101 Review/Verify Profile Sht Complete	3	23DEC99	29DEC99	60
23A54A2	Tank S-101 Calc Inputs for Time 25% LFL	5	30DEC99	06JAN00	86
23A54A3	Tank S-101 Calc Inputs for Time 25% LFL	2	07JAN00	10JAN00	86
23A54A4	Tank S-101 Determn DCRT Time to 25% LFL	2	07JAN00	10JAN00	86
23A54A5	Tank S-101 Compl Compatability Compliance	6	08FEB00	15FEB00	60
23A54A6	Tank S-101 Write/Review Issue White Paper	3	16FEB00	18FEB00	60
23A54A7	Tank S-101 Perform Assessment/Rvw/Approve	5	22FEB00	28FEB00	60
23A54A8	Tank S-101 Management review & approval	5	29FEB00	06MAR00	60
23A54B1	Tank S-101 Review ANOVA Results	2	23DEC99	28DEC99	60
23A54B2	Tank S-101 Gather Process Data (EVAP/FLOW	5	29DEC99	05JAN00	60
23A54B3	Tank S-101 Perform Calculations	5	06JAN00	12JAN00	60
23A54B4	Tank S-101 Prepare Appendix to SD	3	13JAN00	17JAN00	60
23A54B5	Tank S-101 Write Supporting Document	15	18JAN00	07FEB00	60
23A56A	Tank S-101 Plan OTP	10	16DEC99	31DEC99	76
23A56B	Tank S-101 Engineering Plan OTP Saltwell Sys	10	16DEC99	31DEC99	76
23A56D	Tank S-101 Perform OTP	12	05APR00	20APR00	11
23A56E	Tank S-101 OTP Closeout	10	21APR00	04MAY00	11
23A60A	Tank S-101 Hydro - Planning (1 Xfr Line)	10	04JAN00	17JAN00	75
23A60B	Tank S-101 Hydro - Stage Equipment	1	18JAN00	18JAN00	75
23A60C	Tank S-101 Hydro - Set Up	4	19JAN00	24JAN00	75
23A60D	Tank S-101 Hydro - Perform Hydro Test	3	25JAN00	27JAN00	75
23A60E	Tank S-101 Hydro - Reconfig Pits/Restore	5	28JAN00	03FEB00	75
23A62A	Tank S-101 Pit Jmpr/Mod Cover Blks Planning	20	04JAN00	31JAN00	71
23A62B	Tank S-101 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	01FEB00	01FEB00	71



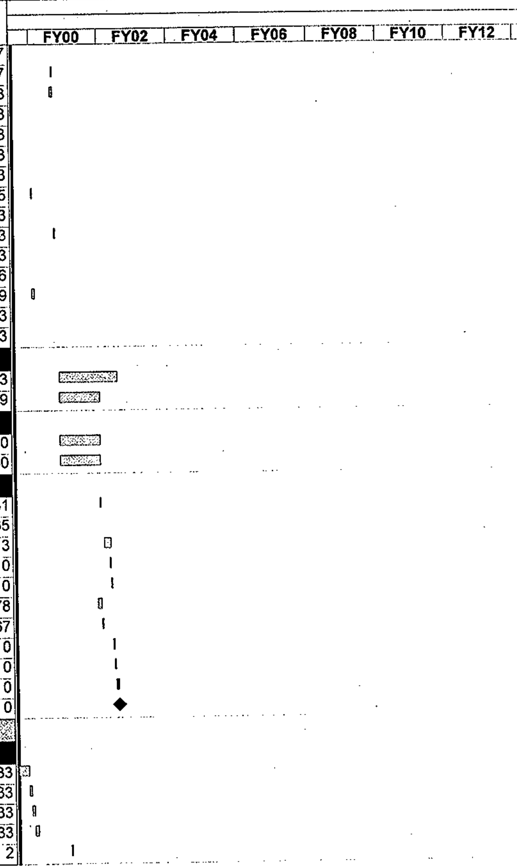
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23A62C	Tank S-101 Pit Jmpr/Mod Cover Blks Field Work	3	02FEB00	04FEB00	71
23A62D	Tank S-101 Pit Jmpr/Mod Cover Blks	1	07FEB00	07FEB00	71
23A62E	Tank S-101 Pit Jmpr/Mod Cover Blks	2	08FEB00	09FEB00	71
23A64A	Tank S-101 Planning	10	16DEC99	31DEC99	98
23A64B	Tank S-101 Stage/Prep Equipment	1	05MAY00	05MAY00	11
23A64C	Tank S-101 Perf Lance/Install Screen	4	08MAY00	11MAY00	11
23A64D	Tank S-101 Restoration	1	12MAY00	12MAY00	11
23A72A	Tank S-101 Write Xfr Procedure for SW Pumping	20	24MAR00	20APR00	25
23A72B	Tank S-101 Perform Mgt Assessment Pre-Start	2	11MAY00	12MAY00	11
23A72C	Tank S-101 Perform Prereq's for SW Pumping	2	15MAY00	16MAY00	11
1.01.02.01.04.45.01.02 Pump Tank S-101					
23A72D1	Pump Tank S-101	303	01JUN00*	30MAR01	1
23A72D2	Tank S-101 Perf Weekly Flush during SW	208	01JUN00	30MAR01	629
1.01.02.01.04.45.01.03 SWP System Maint & Operability Tank S-101					
23A68A	Tank S-101 (Annual) CM	208	01JUN00	30MAR01	629
23A68B	Tank S-101 (Annual) PM	208	01JUN00	30MAR01	629
1.01.02.01.04.45.01.04 Isolation & Intrusion Prevention Tank S-101					
23A78A1	Tank S-101 Prepare WP for In-Tank Video	5	26MAR01	30MAR01	29
23A78A2	Tank S-101 Perform In-Tank Video	1	02APR01	02APR01	66
23A78B1	Tank S-101 Evaluate SW Pumping Data	60	10MAY01	08JUL01	1
23A78B2	Tank S-101 Evaluate In-Tank Video Data	2	06JUL01	09JUL01	0
23A78B3	Tank S-101 Prep Justif Letter/Declare Complete	10	10JUL01	23JUL01	0
23A80A	Tank S-101 Pit Isolation Design	30	16FEB01	30MAR01	79
23A80B	Tank S-101 Isolation Planning	10	03APR01	16APR01	68
23A80C	Tank S-101 Isolation Stage Equipment	10	24JUL01	06AUG01	0
23A80D	Tank S-101 Isolation Work	10	07AUG01	20AUG01	0
23A80E	Tank S-101 Isolation Complete Documentation	20	21AUG01	18SEP01	0
23AMS	Tank S-101 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.02 Stabilize and Isolate Tank S-102					
1.01.02.01.04.45.02.01 Prepare Tank S-102 for Pumping					
23B05C	Tank S-102 Per Tank Walkdown	5	12OCT98*	16OCT98	23
23B10B	Tank S-102 Instl Dsn - Upgr Pump/Instr Ctrl Skid	25	12OCT98	13NOV98	140
23B10D	Tank S-102 Prep/Appr ECN Cover Block Modif.	25	19OCT98	20NOV98	158
23B10E	Tank S-102 Prep Dsn Media to Install FG	25	19OCT98	20NOV98	145
23B10F	Tank S-102 Instl Dsn - Upgr Leak Detect	35	19OCT98	08DEC98	115
23B10K	Tank S-102 Instl Dsn - SWP Screen	25	19OCT98	20NOV98	161
23B10L	Tank S-102 Instl Dsn - Install Pump Jumper	30	19OCT98	01DEC98	95
23B10M	Tank S-102 Instl Dsn - Install Vlv Pit Jump (6)	120	19OCT98	12APR99	23
23B10S	Tank S-102 Instl Dsn - Infr Heat Tracte	35	19OCT98	08DEC98	113
23B10U	Tank S-102 Instl Dsn - Infrastruc (Elect)	35	19OCT98	08DEC98	113

FY00 FY02 FY04 FY06 FY08 FY10 FY12

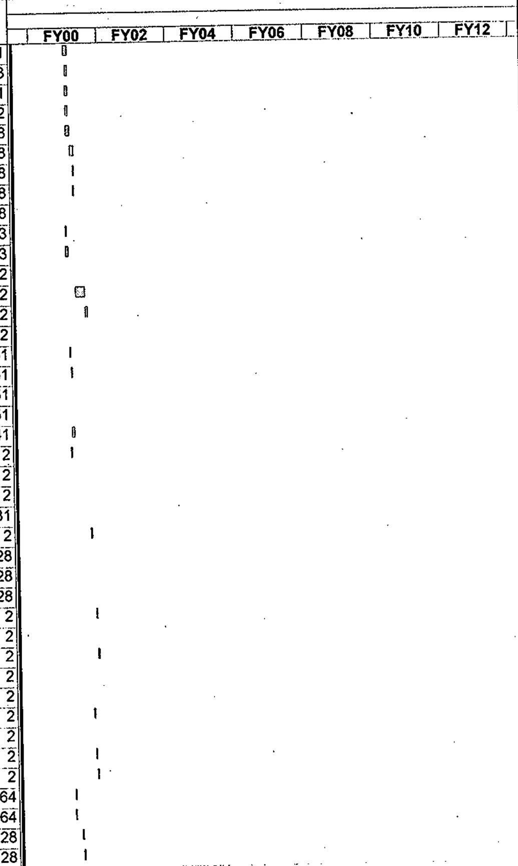
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23B15A	Tank S-102 Mod Existing Pump Jumper (1 ea)	30	02DEC98	15JAN99	95
23B15D	Tank S-102 Fab Pit Valve Jumpers (6)	40	13APR99	08JUN99	23
23B20A	Tank S-102 Plan/Modify Pump	15	18JAN99	05FEB99	95
23B20B	Tank S-102 Plan Run-In	10	18JAN99	29JAN99	95
23B20C	Tank S-102 Pump Run-In	3	01FEB99	03FEB99	95
23B30A	Tank S-102 FGM Planning	10	09NOV98	20NOV98	145
23B30B	Tank S-102 FGM Install	5	23NOV98	01DEC98	145
23B30C	Tank S-102 FGM Perform Calibration	2	25JAN99	26JAN99	113
23B30D	Tank S-102 FGM Perform OTP	3	20JAN99	22JAN99	113
23B40A	Tank S-102 Exhauster Planning	10	19OCT98	30OCT98	383
23B40B	Tank S-102 Stage Materials	5	10MAR99	16MAR99	292
23B40G	Tank S-102 (OTP) Exhauster	6	25MAR99	01APR99	292
23B45B	Tank S-102 Upgrade PIC Skid	20	23DEC98	22JAN99	115
23B50A	Tank S-102 Saltwell Screen Planning	10	09NOV98	20NOV98	161
23B50B	Tank S-102 Saltwell Screen - Stage & Prep	1	23NOV98	23NOV98	161
23B50C	Tank S-102 Saltwell Screen - Install	2	24NOV98	25NOV98	161
23B50D	Tank S-102 Saltwell Screen - Restoration	1	30NOV98	30NOV98	161
23B52A	Tank S-102 Upgr Infr - Electrical	30	09DEC98	22JAN99	113
23B52C	Tank S-102 Upgr Infr - Leak Detectors	30	09DEC98	22JAN99	115
23B52D	Tank S-102 Upgr Infr - Heat Trace	30	09DEC98	22JAN99	113
23B52E	Tank S-102 Upgr Infr - Instrument Upgrades	30	09DEC98	22JAN99	113
23B54A1	Tank S-102 Review/Verify Profile Sht Complete	3	19OCT98	21OCT98	147
23B54A2	Tank S-102 Calc Inputs for Time 25% LFL	5	22OCT98	28OCT98	173
23B54A3	Tank S-102 Calc Inputs for Time 25% LFL	2	29OCT98	30OCT98	173
23B54A4	Tank S-102 Determn DCRT Time to 25% LFL	2	29OCT98	30OCT98	173
23B54A5	Tank S-102 Compl Compatability Compliance	6	02DEC98	09DEC98	147
23B54A6	Tank S-102 Write/Review Issue White Paper	3	10DEC98	14DEC98	147
23B54A7	Tank S-102 Perform Assessment/Rvw/Approve	5	15DEC98	21DEC98	147
23B54A8	Tank S-102 Management review & approval	5	22DEC98	30DEC98	147
23B54B1	Tank S-102 Review ANOVA Results	2	19OCT98	20OCT98	147
23B54B2	Tank S-102 Gather Process Data (EVAP/FLOW	5	21OCT98	27OCT98	147
23B54B3	Tank S-102 Perform Calculations	5	28OCT98	03NOV98	147
23B54B4	Tank S-102 Prepare Appendix to SD	3	04NOV98	06NOV98	147
23B54B5	Tank S-102 Write Supporting Document	15	09NOV98	01DEC98	147
23B56A	Tank S-102 Plan OTP	10	12OCT98	23OCT98	163
23B56B	Tank S-102 Engineering Plan OTP Saltwell Sys	10	21JAN99	03FEB99	95
23B56D	Tank S-102 Perform OTP	12	04FEB99	22FEB99	95
23B56E	Tank S-102 OTP Closeout	10	23FEB99	08MAR99	95
23B60A	Tank S-102 Hydro - Planning (1 Xfr Line) (4)	10	11MAY99	24MAY99	27
23B60B	Tank S-102 Hydro - Stage Equipment (4)	1	25MAY99	25MAY99	27
23B60C	Tank S-102 Hydro - Set Up (4)	4	26MAY99	01JUN99	27

FY00 FY02 FY04 FY06 FY08 FY10 FY12

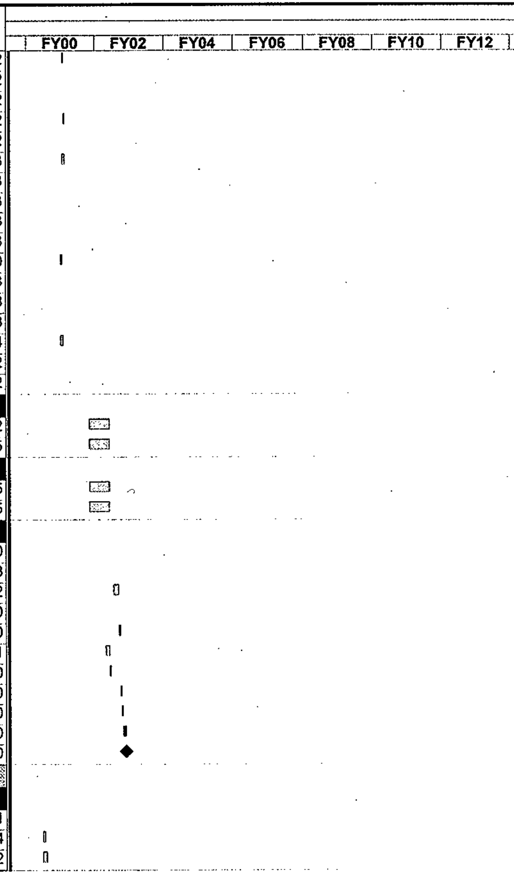
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23B60D	Tank S-102 Hydro - Perform Hydro Test (4)	3	02JUN99	04JUN99	27
23B60E	Tank S-102 Hydro - Reconfig Pits/Restore (4)	5	07JUN99	11JUN99	27
23B62A	Tank S-102 Pit Jmpr/Mod Cover Blks Planning	20	11MAY99	08JUN99	23
23B62B	Tank S-102 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	09JUN99	09JUN99	23
23B62C	Tank S-102 Pit Jmpr/Mod Cover Blks Field Work	3	10JUN99	14JUN99	23
23B62D	Tank S-102 Pit Jmpr/Mod Cover Blks (4)	1	15JUN99	15JUN99	23
23B62E	Tank S-102 Pit Jmpr/Mod Cover Blks Restore (4)	2	16JUN99	17JUN99	23
23B64A	Tank S-102 Planning	10	12OCT98	23OCT98	185
23B64B	Tank S-102 Stage/Prep Equipment	1	18JUN99	18JUN99	23
23B64C	Tank S-102 Perf Lance/Install Screen	4	21JUN99	24JUN99	23
23B64D	Tank S-102 Restoration	1	25JUN99	25JUN99	23
23B66G	Tank S-102 Install OGT System - Field Work	3	01APR98	03APR98	326
23B72A	Tank S-102 Write Xfr Procedure for SW Pumping	20	12OCT98	06NOV98	179
23B72B	Tank S-102 Perform Mgt Assessment Pre-Start	2	24JUN99	25JUN99	23
23B72C	Tank S-102 Perform Prereq's for SW Pumping	2	28JUN99	29JUN99	23
1.01.02.01.04.45.02.02 Pump Tank S-102					
23B72D1	Pump Tank S-102	608	01AUG99*	30MAR01	3
23B72D2	Tank S-102 Perf Weekly Flush during SW	288	02AUG99	21SEP00	759
1.01.02.01.04.45.02.03 SWP System Maint & Operability Tank S-102					
23B68A	Tank S-102 (Annual) CM	297	02AUG99	04OCT00	750
23B68B	Tank S-102 (Annual) PM	297	02AUG99	04OCT00	750
1.01.02.01.04.45.02.04 Isolation & Intrusion Prevention Tank S-102					
23B78A1	Tank S-102 Prepare WP for In-Tank Video	5	15SEP00	21SEP00	31
23B78A2	Tank S-102 Perform In-Tank Video	1	22SEP00	22SEP00	65
23B78B1	Tank S-102 Evaluate SW Pumping Data	60	01NOV00	30DEC00	3
23B78B2	Tank S-102 Evaluate In-Tank Video Data	2	29DEC00	02JAN01	0
23B78B3	Tank S-102 Prep Justif Letter/Declare Compl	10	03JAN01	16JAN01	0
23B80A	Tank S-102 Pit Isolation Design	30	10AUG00	21SEP00	78
23B80B	Tank S-102 Isolation Planning	10	25SEP00	06OCT00	67
23B80C	Tank S-102 Isolation Stage Equipment	10	17JAN01	30JAN01	0
23B80D	Tank S-102 Isolation Work	10	31JAN01	13FEB01	0
23B80E	Tank S-102 Isolation Complete Documentation	20	14FEB01	14MAR01	0
23BMS	Tank S-102 Stabilization/Isolation Complete	0		14MAR01	0
1.01.02.01.04.45.03 Stabilize and Isolate Tank S-103					
1.01.02.01.04.45.03.01 Prepare Tank S-103 for Pumping					
23307A	Management/Engineering	75	01APR98	17JUL98	133
23307B	Authorization Basis (USQ/FGEAB/SEL/CGI)	20	20JUL98	14AUG98	133
23307C	Procure Abrasive Water Jet & Hanford	20	17AUG98	14SEP98	133
23307D	Testing/Training/Assessment of Readiness	35	15SEP98	02NOV98	133
23C05C	Tank S-103 Per Tank Walkdown	5	13OCT99*	19OCT99	2



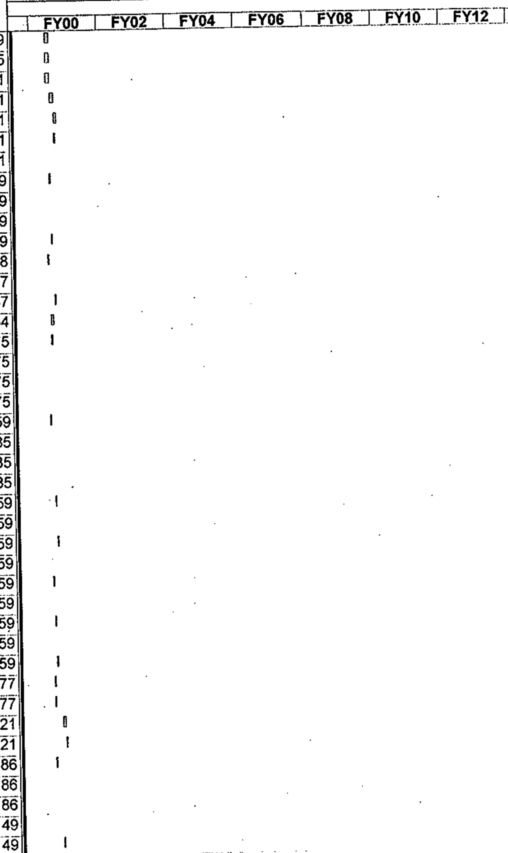
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23C10A	Tank S-103 Dsn Pmpg & Intr Ctrl Skid	30	13OCT99	23NOV99	141
23C10D	Tank S-103 Prep/Appr ECN Cover Block Modif.	25	20OCT99	23NOV99	163
23C10E	Tank S-103 Prep Dsn Media to Instl FG	25	20OCT99	23NOV99	151
23C10K	Tank S-103 Instl Dsn - SWP Screen	25	20OCT99	23NOV99	2
23C10L	Tank S-103 Instl Dsn - Install Pump Jumper	30	20OCT99	02DEC99	128
23C15A	Tank S-103 Mod Existing Pump Jumper (1 ea)	30	03DEC99	18JAN00	128
23C20A	Tank S-103 Plan/Modify Pump	15	28DEC99	18JAN00	128
23C20B	Tank S-103 Plan Run-In	10	28DEC99	11JAN00	128
23C20C	Tank S-103 Pump Run-In	3	12JAN00	14JAN00	128
23C25A	Tank S-103 Write PM/TSAP	10	13OCT99	26OCT99	43
23C25B	Tank S-103 Plan/Schedule/Obtain Materials	22	13OCT99	11NOV99	43
23C25C	Tank S-103 Obtain Grab Sample	3	17JAN00	19JAN00	2
23C25D	Tank S-103 Analyze Grab Sample	66	20JAN00	21APR00	2
23C25E	Tank S-103 Issue Lab Analysis Final Report	22	24APR00	23MAY00	2
23C25F	Tank S-103 Enter Lab Data into TCD	1	24MAY00	24MAY00	2
23C30A	Tank S-103 FGM Planning (2)	10	10NOV99	23NOV99	151
23C30B	Tank S-103 FGM Install (2)	5	24NOV99	02DEC99	151
23C30C	Tank S-103 FGM Perform Calibration (2)	2	08DEC99	09DEC99	151
23C30D	Tank S-103 FGM Perform OTP (2)	3	03DEC99	07DEC99	151
23C45A	Tank S-103 Receive/Install Test PIC	20	24NOV99	23DEC99	141
23C50A	Tank S-103 Saltwell Screen Planning	10	10NOV99	23NOV99	2
23C50B	Tank S-103 Saltwell Screen - Stage & Prep	1	24NOV99	24NOV99	2
23C50C	Tank S-103 Saltwell Screen - Install	2	29NOV99	30NOV99	2
23C50D	Tank S-103 Saltwell Screen - Restoration	1	01DEC99	01DEC99	31
23C54A1	Tank S-103 Review/Verify Profile Sht Complete	3	25MAY00	30MAY00	2
23C54A2	Tank S-103 Calc Inputs for Time 25% LFL	5	31MAY00	06JUN00	28
23C54A3	Tank S-103 Calc Inputs for Time 25% LFL	2	07JUN00	08JUN00	28
23C54A4	Tank S-103 Determn DCRT Time to 25% LFL	2	07JUN00	08JUN00	28
23C54A5	Tank S-103 Compl Compatability Compliance	6	11JUL00	18JUL00	2
23C54A6	Tank S-103 Write/Review Issue White Paper	3	19JUL00	21JUL00	2
23C54A7	Tank S-103 Perform Assessment/Rvw/Approve	5	24JUL00	28JUL00	2
23C54A8	Tank S-103 Management review & approval	5	31JUL00	04AUG00	2
23C54B1	Tank S-106 Review ANOVA Results	2	25MAY00	26MAY00	2
23C54B2	Tank S-106 Gather Process Data (EVAP/FLOW	5	30MAY00	05JUN00	2
23C54B3	Tank S-106 Perform Calculations	5	06JUN00	12JUN00	2
23C54B4	Tank S-106 Prepare Appendix to SD	3	13JUN00	15JUN00	2
23C54B5	Tank S-106 Write Supporting Document	15	16JUN00	10JUL00	2
23C56A	Tank S-103 Plan OTP	10	20OCT99	02NOV99	164
23C56B	Tank S-103 Engineering Plan OTP Saltwell Sys	10	20OCT99	02NOV99	164
23C56D	Tank S-103 Perform OTP	12	29DEC99	14JAN00	128
23C56E	Tank S-103 OTP Closeout	10	17JAN00	28JAN00	128



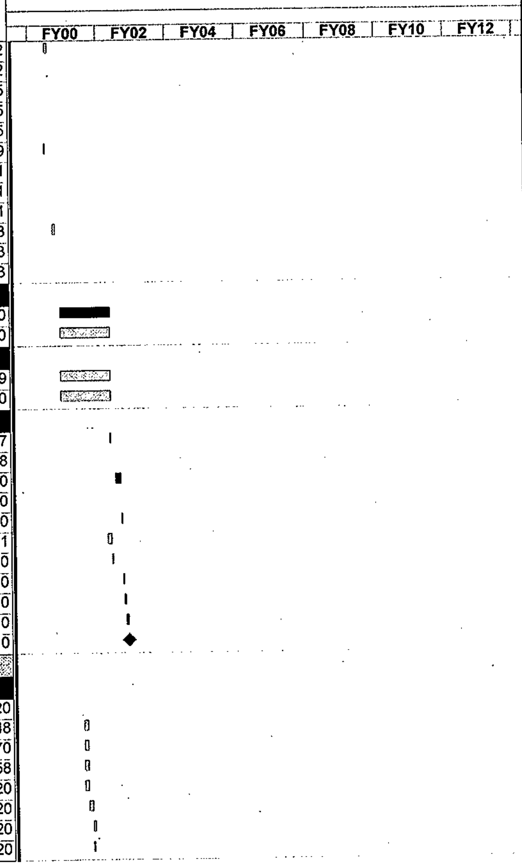
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23C60A	Tank S-103 Hydro - Planning (1 Xfr Line)	10	20OCT99	02NOV99	172
23C60B	Tank S-103 Hydro - Stage Equipment	1	03NOV99	03NOV99	172
23C60C	Tank S-103 Hydro - Set Up	4	04NOV99	09NOV99	172
23C60D	Tank S-103 Hydro - Perform Hydro Test	3	10NOV99	12NOV99	172
23C60E	Tank S-103 Hydro - Reconfig Pits/Restore	5	15NOV99	19NOV99	172
23C62A	Tank S-103 Pit Jmpr/Mod Cover Blks Planning	20	27OCT99	23NOV99	163
23C62B	Tank S-103 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	24NOV99	24NOV99	163
23C62C	Tank S-103 Pit Jmpr/Mod Cover Blks Field Work	3	29NOV99	01DEC99	163
23C62D	Tank S-103 Pit Jmpr/Mod Cover Blks	1	02DEC99	02DEC99	163
23C62E	Tank S-103 Pit Jmpr/Mod Cover Blks	2	03DEC99	06DEC99	163
23C64A	Tank S-103 Planning	10	13OCT99	26OCT99	190
23C64B	Tank S-103 Stage/Prep Equipment	1	07DEC99	07DEC99	163
23C64C	Tank S-103 Perf Lance/Install Screen	4	31JAN00	03FEB00	128
23C64D	Tank S-103 Restoration	1	04FEB00	04FEB00	128
23C72A	Tank S-103 Write Xfr Procedure for SW Pumping	20	13OCT99	09NOV99	184
23C72B	Tank S-103 Perform Mgt Assessment Pre-Start	2	03AUG00	04AUG00	2
23C72C	Tank S-103 Perform Prereq's for SW Pumping	2	07AUG00	08AUG00	2
1.01.02.01.04.45.03.02 Pump Tank S-103					
23C72D1	Pump Tank S-103	212	09AUG00*	08MAR01	2
23C72D2	Tank S-103 Perf Weekly Flush during SW	145	09AUG00	08MAR01	645
1.01.02.01.04.45.03.03 SWP System Maint & Operability Tank S-103					
23C68A	Tank S-103 (Annual) CM	145	09AUG00	08MAR01	645
23C68D	Tank S-103 (Annual) PM Skid Mounted	145	09AUG00	08MAR01	645
1.01.02.01.04.45.03.04 Isolation & Intrusion Prevention Tank S-103					
23C78A1	Tank S-103 Prepare WP for In-Tank Video	5	02MAR01	08MAR01	30
23C78A2	Tank S-103 Perform In-Tank Video	1	09MAR01	09MAR01	68
23C78B1	Tank S-103 Evaluate SW Pumping Data	60	18APR01	16JUN01	2
23C78B2	Tank S-103 Evaluate In-Tank Video Data	2	15JUN01	18JUN01	0
23C78B3	Tank S-103 Prep Justif Letter/Declare Complete	10	19JUN01	02JUL01	0
23C80A	Tank S-103 Pit Isolation Design	30	25JAN01	08MAR01	81
23C80B	Tank S-103 Isolation Planning	10	12MAR01	23MAR01	70
23C80C	Tank S-103 Isolation Stage Equipment	10	03JUL01	17JUL01	0
23C80D	Tank S-103 Isolation Work	10	18JUL01	31JUL01	0
23C80E	Tank S-103 Isolation Complete Documentation	20	01AUG01	28AUG01	0
23CMS	Tank S-103 Tank Stabilization/Isolation Compl	0		28AUG01	0
1.01.02.01.04.45.06 Stabilize and Isolate Tank S-106					
1.01.02.01.04.45.06.01 Prepare Tank S-106 for Pumping					
23D05C	Tank S-106 Per Tank Walkdown	5	19MAR99*	25MAR99	21
23D10B	Tank S-106 Instl Dsn - Upgr Pump/Instr Ctrl Skid	25	19MAR99	22APR99	54
23D10D	Tank S-106 Prep/Appr ECN Cover Block Modif.	25	26MAR99	29APR99	72



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23D10E	Tank S-106 Prep Dsn Media to Install FG	25	26MAR99	29APR99	59
23D10K	Tank S-106 Instl Dsn - SWP Screen	25	26MAR99	29APR99	75
23D10L	Tank S-106 Instl Dsn - Install Pump Jumper	30	26MAR99	06MAY99	21
23D15A	Tank S-106 Mod Existing Pump Jumper (1 ea)	30	07MAY99	18JUN99	21
23D20A	Tank S-106 Plan/Modify Pump	15	21JUN99	13JUL99	21
23D20B	Tank S-106 Plan Run-In	10	21JUN99	02JUL99	21
23D20C	Tank S-106 Pump Run-In	3	07JUL99	09JUL99	21
23D30A	Tank S-106 FGM Planning	10	16APR99	29APR99	59
23D30B	Tank S-106 FGM Install	5	30APR99	06MAY99	59
23D30C	Tank S-106 FGM Perform Calibration	2	12MAY99	13MAY99	59
23D30D	Tank S-106 FGM Perform OTP	3	07MAY99	11MAY99	59
23D40A	Tank S-106 Exhauster Planning	10	26MAR99	08APR99	88
23D40B	Tank S-106 Stage Materials	5	17MAY99	21MAY99	57
23D40G	Tank S-106 (OTP) Exhauster	6	02JUN99	09JUN99	57
23D45B	Tank S-106 Upgrade PIC Skid	20	23APR99	20MAY99	54
23D50A	Tank S-106 Saltwell Screen Planning	10	16APR99	29APR99	75
23D50B	Tank S-106 Saltwell Screen - Stage & Prep	1	30APR99	30APR99	75
23D50C	Tank S-106 Saltwell Screen - Install	2	03MAY99	04MAY99	75
23D50D	Tank S-106 Saltwell Screen - Restoration	1	05MAY99	05MAY99	75
23D54A1	Tank S-106 Review/Verify Profile Sht Complete	3	26MAR99	30MAR99	59
23D54A2	Tank S-106 Calc Inputs for Time 25% LFL	5	31MAR99	06APR99	85
23D54A3	Tank S-106 Calc Inputs for Time 25% LFL	2	07APR99	08APR99	85
23D54A4	Tank S-106 Determn DCRT Time to 25% LFL	2	07APR99	08APR99	85
23D54A5	Tank S-106 Compl Compatability Compliance	6	07MAY99	14MAY99	59
23D54A6	Tank S-106 Write/Review Issue White Paper	3	17MAY99	19MAY99	59
23D54A7	Tank S-106 Perform Assessment/Rvw/Approve	5	20MAY99	26MAY99	59
23D54A8	Tank S-106 Management review & approval	5	27MAY99	03JUN99	59
23D54B1	Tank S-106 Review ANOVA Results	2	26MAR99	29MAR99	59
23D54B2	Tank S-106 Gather Process Data (EVAP/FLOW	5	30MAR99	05APR99	59
23D54B3	Tank S-106 Perform Calculations	5	06APR99	12APR99	59
23D54B4	Tank S-106 Prepare Appendix to SD	3	13APR99	15APR99	59
23D54B5	Tank S-106 Write Supporting Document	15	16APR99	06MAY99	59
23D56A	Tank S-106 Plan OTP	10	19MAR99	01APR99	77
23D56B	Tank S-106 Engineering Plan OTP Saltwell Sys	10	19MAR99	01APR99	77
23D56D	Tank S-106 Perform OTP	12	22JUN99	09JUL99	21
23D56E	Tank S-106 OTP Closeout	10	12JUL99	23JUL99	21
23D60A	Tank S-106 Hydro - Planning (1 Xfr Line)	10	19MAR99	01APR99	86
23D60B	Tank S-106 Hydro - Stage Equipment	1	02APR99	02APR99	86
23D60C	Tank S-106 Hydro - Set Up	4	05APR99	08APR99	86
23D60D	Tank S-106 Hydro - Perform Hydro Test	3	02JUN99	04JUN99	49
23D60E	Tank S-106 Hydro - Reconfig Pits/Restore	5	07JUN99	11JUN99	49



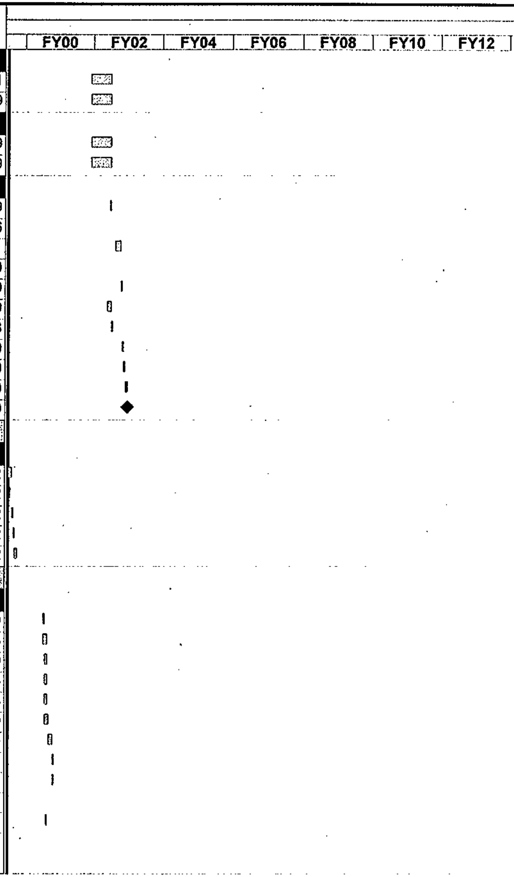
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23D62A	Tank S-106 Pit Jmpr/Mod Cover Blks Planning	20	02APR99	29APR99	72
23D62B	Tank S-106 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	30APR99	30APR99	72
23D62C	Tank S-106 Pit Jmpr/Mod Cover Blks Field Work	3	10JUN99	14JUN99	45
23D62D	Tank S-106 Pit Jmpr/Mod Cover Blks	1	15JUN99	15JUN99	45
23D62E	Tank S-106 Pit Jmpr/Mod Cover Blks	2	16JUN99	17JUN99	45
23D64A	Tank S-106 Planning	10	19MAR99	01APR99	99
23D64B	Tank S-106 Stage/Prep Equipment	1	26JUL99	26JUL99	21
23D64C	Tank S-106 Perf Lance/Install Screen	4	27JUL99	30JUL99	21
23D64D	Tank S-106 Restoration	1	02AUG99	02AUG99	21
23D72A	Tank S-106 Write Xfr Procedure for SW Pumping	20	10JUN99	09JUL99	33
23D72B	Tank S-106 Perform Mgt Assessment Pre-Start	2	12JUL99	13JUL99	33
23D72C	Tank S-106 Perform Prereq's for SW Pumping	2	14JUL99	15JUL99	33
1.01.02.01.04.45.06.02 Pump Tank S-106					
23D72D1	Pump Tank S-106	519	01SEP99*	31JAN01	0
23D72D2	Tank S-106 Perf Weekly Flush during SW	355	01SEP99	31JAN01	670
1.01.02.01.04.45.06.03 SWP System Maint & Operability Tank S-106					
23D68A	Tank S-106 (Annual) CM	356	01SEP99	01FEB01	669
23D68B	Tank S-106 (Annual) PM	355	01SEP99	31JAN01	670
1.01.02.01.04.45.06.04 Isolation & Intrusion Prevention Tank S-106					
23D78A1	Tank S-106 Prepare WP for In-Tank Video	5	25JAN01	31JAN01	27
23D78A2	Tank S-106 Perform In-Tank Video	1	01FEB01	01FEB01	68
23D78B1	Tank S-106 Evaluate SW Pumping Data	60	13MAR01	11MAY01	0
23D78B2	Tank S-106 Evaluate In-Tank Video Data	2	10MAY01	11MAY01	0
23D78B3	Tank S-106 Prep Justif Letter/Declare Complete	10	14MAY01	25MAY01	0
23D80A	Tank S-106 Pit Isolation Design	30	18DEC00	31JAN01	81
23D80B	Tank S-106 Isolation Planning	10	02FEB01	15FEB01	70
23D80C	Tank S-106 Isolation Stage Equipment	10	29MAY01	11JUN01	0
23D80D	Tank S-106 Isolation Work	10	12JUN01	25JUN01	0
23D80E	Tank S-106 Isolation Complete Documentation	20	26JUN01	24JUL01	0
23DMS	Tank S-106 Tank Stabilization/Isolation Compl	0		24JUL01	0
1.01.02.01.04.45.07 Stabilize and Isolate Tank S-107					
1.01.02.01.04.45.07.01 Prepare Tank S-107 for Pumping					
23E05C	Tank S-107 Per Tank Walkdown	5	24MAR00*	30MAR00	20
23E10A	Tank S-107 Dsn Pmpg & Intr Ctrl Skid	30	24MAR00	04MAY00	48
23E10D	Tank S-107 Prep/Appr ECN Cover Block Modif.	25	31MAR00	04MAY00	70
23E10E	Tank S-107 Prep Dsn Media to Install FG	25	31MAR00	04MAY00	58
23E10L	Tank S-107 Instl Dsn - Install Pump Jumper	30	31MAR00	11MAY00	20
23E15A	Tank S-107 Mod Existing Pump Jumper (1 ea)	30	12MAY00	23JUN00	20
23E20A	Tank S-107 Plan/Modify Pump	15	26JUN00	18JUL00	20
23E20B	Tank S-107 Plan Run-In	10	26JUN00	11JUL00	20



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23E20C	Tank S-107 Pump Run-In	3	12JUL00	14JUL00	20
23E30A	Tank S-107 FGM Planning	10	21APR00	04MAY00	58
23E30B	Tank S-107 FGM Install	5	05MAY00	11MAY00	58
23E30C	Tank S-107 FGM Perform Calibration	2	17MAY00	18MAY00	58
23E30D	Tank S-107 FGM Perform OTP	3	12MAY00	16MAY00	58
23E45A	Tank S-107 Receive/Install Test PIC	20	05MAY00	02JUN00	48
23E54A1	Tank S-107 Review/Verify Profile Sht Complete	3	31MAR00	04APR00	57
23E54A2	Tank S-107 Calc Inputs for Time 25% LFL	5	05APR00	11APR00	83
23E54A3	Tank S-107 Calc Inputs for Time 25% LFL	2	12APR00	13APR00	83
23E54A4	Tank S-107 Determn DCRT Time to 25% LFL	2	12APR00	13APR00	83
23E54A5	Tank S-107 Compl Compatability Compliance	6	12MAY00	19MAY00	57
23E54A6	Tank S-107 Write/Review Issue White Paper	3	22MAY00	24MAY00	57
23E54A7	Tank S-107 Perform Assessment/Rvw/Approve	5	25MAY00	01JUN00	57
23E54A8	Tank S-107 Management review & approval	5	02JUN00	08JUN00	57
23E54B1	Tank S-107 Review ANOVA Results	2	31MAR00	03APR00	57
23E54B2	Tank S-107 Gather Process Data (EVAP/FLOW	5	04APR00	10APR00	57
23E54B3	Tank S-107 Perform Calculations	5	11APR00	17APR00	57
23E54B4	Tank S-107 Prepare Appendix to SD	3	18APR00	20APR00	57
23E54B5	Tank S-107 Write Supporting Document	15	21APR00	11MAY00	57
23E56A	Tank S-107 Plan OTP	10	24MAR00	06APR00	76
23E56B	Tank S-107 Engineering Plan OTP Saltwell Sys	10	24MAR00	06APR00	76
23E56D	Tank S-107 Perform OTP	12	27JUN00	14JUL00	20
23E56E	Tank S-107 OTP Closeout	10	17JUL00	28JUL00	20
23E60A	Tank S-107 Hydro - Planning (1 Xfr Line)	10	24MAR00	06APR00	84
23E60B	Tank S-107 Hydro - Stage Equipment	1	07APR00	07APR00	84
23E60C	Tank S-107 Hydro - Set Up	4	10APR00	13APR00	84
23E60D	Tank S-107 Hydro - Perform Hydro Test	3	14APR00	18APR00	84
23E60E	Tank S-107 Hydro - Reconfig Pits/Restore	5	19APR00	25APR00	84
23E62A	Tank S-107 Pit Jmpr/Mod Cover Blks Planning	20	07APR00	04MAY00	70
23E62B	Tank S-107 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	05MAY00	05MAY00	70
23E62C	Tank S-107 Pit Jmpr/Mod Cover Blks Field Work	3	08MAY00	10MAY00	70
23E62D	Tank S-107 Pit Jmpr/Mod Cover Blks	1	11MAY00	11MAY00	70
23E62E	Tank S-107 Pit Jmpr/Mod Cover Blks	2	12MAY00	15MAY00	70
23E64A	Tank S-107 Planning	10	24MAR00	06APR00	97
23E64B	Tank S-107 Stage/Prep Equipment	1	16MAY00	16MAY00	70
23E64C	Tank S-107 Perf Lance/Install Screen	4	31JUL00	03AUG00	20
23E64D	Tank S-107 Restoration	1	04AUG00	04AUG00	20
23E72A	Tank S-107 Write Xfr Procedure for SW Pumping	20	15JUN00	14JUL00	31
23E72B	Tank S-107 Perform Mgt Assessment Pre-Start	2	17JUL00	18JUL00	31
23E72C	Tank S-107 Perform Prereq's for SW Pumping	2	19JUL00	20JUL00	31

FY00 FY02 FY04 FY06 FY08 FY10 FY12

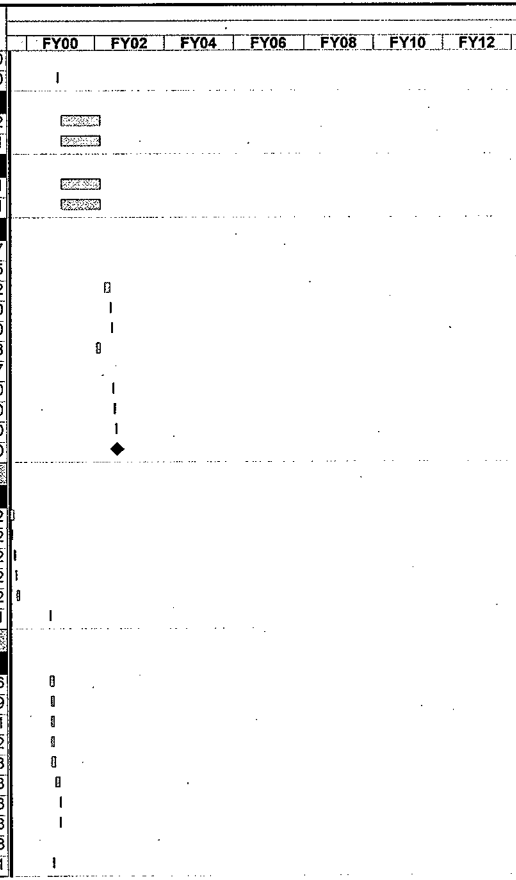
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.45.07.02 Pump Tank S-107					
23E72D1	Pump Tank S-107	211	01SEP00*	30MAR01	1
23E72D2	Tank S-107 Perf Weekly Flush during SW	144	01SEP00	30MAR01	629
1.01.02.01.04.45.07.03 SWP System Maint & Operability Tank S-107					
23E68A	Tank S-107 (Annual) CM	144	01SEP00	30MAR01	629
23E68B	Tank S-107 (Annual) PM	144	01SEP00	30MAR01	629
1.01.02.01.04.45.07.04 Isolation & Intrusion Prevention Tank S-107					
23E78A1	Tank S-107 Prepare WP for In-Tank Video	5	26MAR01	30MAR01	29
23E78A2	Tank S-107 Perform In-Tank Video	1	02APR01	02APR01	66
23E78B1	Tank S-107 Evaluate SW Pumping Data	60	10MAY01	08JUL01	1
23E78B2	Tank S-107 Evaluate In-Tank Video Data	2	06JUL01	09JUL01	0
23E78B3	Tank S-107 Prep Justif Letter/Declare Complete	10	10JUL01	23JUL01	0
23E80A	Tank S-107 Pit Isolation Design	30	16FEB01	30MAR01	79
23E80B	Tank S-107 Isolation Planning	10	03APR01	16APR01	68
23E80C	Tank S-107 Isolation Stage Equipment	10	24JUL01	06AUG01	0
23E80D	Tank S-107 Isolation Work	10	07AUG01	20AUG01	0
23E80E	Tank S-107 Isolation Complete Documentation	20	21AUG01	18SEP01	0
23EMS	Tank S-107 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.08 Stabilize and Isolate Tank S-108					
1.01.02.01.04.45.08.04 Isolation & Intrusion Prevention Tank S-108					
23085H1	Tank S-108 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085H2	Tank S-108 Isolation Planning	10	15APR98	28APR98	1,322
23085H3	Tank S-108 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085H4	Tank S-108 Isolation Work	10	28MAY98	10JUN98	1,312
23085H5	Tank S-108 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.45.09 Stabilize and Isolate Tank S-109					
1.01.02.01.04.45.09.01 Prepare Tank S-109 for Pumping					
23F05C	Tank S-109 Per Tank Walkdown	5	20APR99*	26APR99	20
23F10B	Tank S-109 Instl Dsn - Upgr Pump/Instr Ctrl Skid	25	20APR99	24MAY99	53
23F10D	Tank S-109 Prep/Appr ECN Cover Block Modif.	25	27APR99	01JUN99	70
23F10E	Tank S-109 Prep Dsn Media to Install FG	25	27APR99	01JUN99	58
23F10K	Tank S-100 Instl Dsn - SWP Screen	25	27APR99	01JUN99	73
23F10L	Tank S-109 Instl Dsn - Install Pump Jumper	30	27APR99	08JUN99	20
23F15A	Tank S-109 Mod Existing Pump Jumper (1 ea)	30	09JUN99	22JUL99	20
23F20A	Tank S-109 Plan/Modify Pump	15	23JUL99	12AUG99	20
23F20B	Tank S-109 Plan Run-In	10	23JUL99	05AUG99	20
23F20C	Tank S-109 Pump Run-In	3	06AUG99	10AUG99	20
23F30A	Tank S-109 FGM Planning	10	18MAY99	01JUN99	58
23F30B	Tank S-109 FGM Install	5	27JUL99	02AUG99	21
23F30C	Tank S-109 FGM Perform Calibration	2	06AUG99	09AUG99	21



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23F30D	Tank S-109 FGM Perform OTP	3	03AUG99	05AUG99	21
23F40A	Tank S-109 Exhauster Planning	10	27APR99	10MAY99	86
23F40B	Tank S-109 Stage Materials	5	17MAY99	21MAY99	77
23F40G	Tank S-109 (OTP) Exhauster	6	02JUN99	09JUN99	77
23F45B	Tank S-109 Upgrade PIC Skid	20	25MAY99	22JUN99	53
23F50A	Tank S-109 Saltwell Screen Planning	10	18MAY99	01JUN99	73
23F50B	Tank S-109 Saltwell Screen - Stage & Prep	1	02JUN99	02JUN99	73
23F50C	Tank S-109 Saltwell Screen - Install	2	03JUN99	04JUN99	73
23F50D	Tank S-109 Saltwell Screen - Restoration	1	07JUN99	07JUN99	73
23F54A1	Tank S-109 Review/Verify Profile Sht Complete	3	27APR99	29APR99	100
23F54A2	Tank S-109 Calc Inputs for Time 25% LFL	5	30APR99	06MAY99	126
23F54A3	Tank S-109 Calc Inputs for Time 25% LFL	2	07MAY99	10MAY99	126
23F54A4	Tank S-109 Determn DCRT Time to 25% LFL	2	07MAY99	10MAY99	126
23F54A5	Tank S-109 Compl Compatability Compliance	6	09JUN99	16JUN99	100
23F54A6	Tank S-109 Write/Review Issue White Paper	3	17JUN99	21JUN99	100
23F54A7	Tank S-109 Perform Assessment/Rvw/Approve	5	22JUN99	28JUN99	100
23F54A8	Tank S-109 Management review & approval	5	29JUN99	07JUL99	100
23F54B1	Tank S-109 Review ANOVA Results	2	27APR99	28APR99	100
23F54B2	Tank S-109 Gather Process Data (EVAP/FLOW	5	29APR99	05MAY99	100
23F54B3	Tank S-109 Perform Calculations	5	06MAY99	12MAY99	100
23F54B4	Tank S-109 Prepare Appendix to SD	3	13MAY99	17MAY99	100
23F54B5	Tank S-109 Write Supporting Document	15	18MAY99	08JUN99	100
23F56A	Tank S-109 Plan OTP	10	20APR99	03MAY99	76
23F56B	Tank S-109 Engineering Plan OTP Saltwell Sys	10	20APR99	03MAY99	76
23F56D	Tank S-109 Perform OTP	12	26JUL99	10AUG99	20
23F56E	Tank S-109 OTP Closeout	10	11AUG99	24AUG99	20
23F60A	Tank S-109 Hydro - Planning (1 Xfr Line) (3)	10	20APR99	03MAY99	84
23F60B	Tank S-109 Hydro - Stage Equipment (3)	1	04MAY99	04MAY99	84
23F60C	Tank S-109 Hydro - Set Up (3)	4	05MAY99	10MAY99	84
23F60D	Tank S-109 Hydro - Perform Hydro Test (3)	3	02JUN99	04JUN99	69
23F60E	Tank S-109 Hydro - Reconfig Pits/Restore (3)	5	07JUN99	11JUN99	69
23F62A	Tank S-109 Pit Jmpr/Mod Cover Blks Planning	20	04MAY99	01JUN99	70
23F62B	Tank S-109 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	02JUN99	02JUN99	70
23F62C	Tank S-109 Pit Jmpr/Mod Cover Blks Field Work	3	10JUN99	14JUN99	65
23F62D	Tank S-109 Pit Jmpr/Mod Cover Blks	1	15JUN99	15JUN99	65
23F62E	Tank S-109 Pit Jmpr/Mod Cover Blks	2	16JUN99	17JUN99	65
23F64A	Tank S-109 Planning	10	20APR99	03MAY99	97
23F64B	Tank S-109 Stage/Prep Equipment	1	24AUG99	24AUG99	20
23F64C	Tank S-109 Perf Lance/Install Screen	4	25AUG99	30AUG99	20
23F64D	Tank S-109 Restoration	1	31AUG99	31AUG99	20
23F72A	Tank S-109 Write Xfr Procedure for SW Pumping	20	14JUL99	10AUG99	33

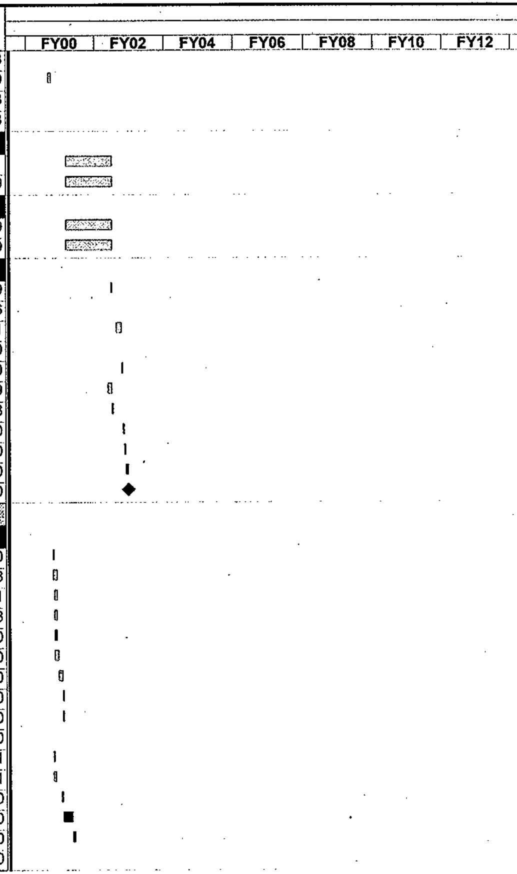
FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23F72B	Tank S-109 Perform Mgt Assessment Pre-Start	2	30AUG99	31AUG99	20
23F72C	Tank S-109 Perform Prereq's for SW Pumping	2	01SEP99	02SEP99	20
1.01.02.01.04.45.09.02 Pump Tank S-109					
23F72D1	Pump Tank S-109	427	01OCT99*	30NOV00	2
23F72D2	Tank S-109 Perf Weekly Flush during SW	293	01OCT99	30NOV00	711
1.01.02.01.04.45.09.03 SWP System Maint & Operability Tank S-109					
23F68A	Tank S-109 (Annual) CM	293	01OCT99	30NOV00	711
23F68B	Tank S-109 (Annual) PM	293	01OCT99	30NOV00	711
1.01.02.01.04.45.09.04 Isolation & Intrusion Prevention Tank S-109					
23F78A1	Tank S-109 Prepare WP for In-Tank Video	5	22NOV00	30NOV00	27
23F78A2	Tank S-109 Perform In-Tank Video	1	01DEC00	01DEC00	65
23F78B1	Tank S-109 Evaluate SW Pumping Data	60	10JAN01	10MAR01	2
23F78B2	Tank S-109 Evaluate In-Tank Video Data	2	09MAR01	12MAR01	0
23F78B3	Tank S-109 Prep Justif Letter/Declare Complete	10	13MAR01	26MAR01	0
23F80A	Tank S-109 Pit Isolation Design	30	18OCT00	30NOV00	78
23F80B	Tank S-109 Isolation Planning	10	04DEC00	15DEC00	67
23F80C	Tank S-109 Isolation Stage Equipment	10	27MAR01	09APR01	0
23F80D	Tank S-109 Isolation Work	10	10APR01	23APR01	0
23F80E	Tank S-109 Isolation Complete Documentation	20	24APR01	21MAY01	0
23FMS	Tank S-109 Tank Stabilization/Isolation Compl	0		21MAY01	0
1.01.02.01.04.45.10 Stabilize and Isolate Tank S-110					
1.01.02.01.04.45.10.04 Isolation & Intrusion Prevention Tank S-110					
23085J1	Tank S-110 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085J2	Tank S-110 Isolation Planning	10	15APR98	28APR98	1,322
23085J3	Tank S-110 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085J4	Tank S-110 Isolation Work	10	28MAY98	10JUN98	1,312
23085J5	Tank S-110 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
23G05C	Tank S-111 Per Tank Walkdown	5	04JUN99*	10JUN99	21
1.01.02.01.04.45.11 Stabilize and Isolate Tank S-111					
1.01.02.01.04.45.11.01 Prepare Tank S-111 for Pumping					
23G10A	Tank S-111 Dsn Pumping & Intr Crtl Skid	30	04JUN99	19JUL99	56
23G10D	Tank S-111 Prep/Appr ECN Cover Block Modif.	25	11JUN99	19JUL99	79
23G10E	Tank S-111 Prep Dsn Media to Install FG	25	11JUN99	19JUL99	21
23G10K	Tank S-111 Instl Dsn - SWP Screen	25	11JUN99	19JUL99	82
23G10L	Tank S-111 Instl Dsn - Install Pump Jumper	30	11JUN99	26JUL99	28
23G15A	Tank S-111 Mod Existing Pump Jumper (1 ea)	30	27JUL99	07SEP99	28
23G20A	Tank S-111 Plan/Modify Pump	15	08SEP99	28SEP99	28
23G20B	Tank S-111 Plan Run-In	10	08SEP99	21SEP99	28
23G20C	Tank S-111 Pump Run-In	3	22SEP99	24SEP99	28
23G30A	Tank S-111 FGM Planning	10	02JUL99	19JUL99	21



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	FY00 FY02 FY04 FY06 FY08 FY10 FY12
23G30B	Tank S-111 FGM Install	5	20JUL99	26JUL99	21	
23G30C	Tank S-111 FGM Perform Calibration	2	30JUL99	02AUG99	66	
23G30D	Tank S-111 FGM Perform OTP	3	27JUL99	29JUL99	66	
23G40A	Tank S-111 Exhauster Planning	10	11JUN99	24JUN99	95	
23G40B	Tank S-111 Stage Materials	5	16AUG99	20AUG99	56	
23G40G	Tank S-111 (OTP) Exhauster	6	31AUG99	08SEP99	56	
23G45B	Tank S-111 Upgrade PIC Skid	20	20JUL99	16AUG99	56	
23G50A	Tank S-111 Saltwell Screen Planning	10	02JUL99	19JUL99	82	
23G50B	Tank S-111 Saltwell Screen - Stage & Prep	1	20JUL99	20JUL99	82	
23G50C	Tank S-111 Saltwell Screen - Install	2	21JUL99	22JUL99	82	
23G50D	Tank S-111 Saltwell Screen - Restoration	1	23JUL99	23JUL99	82	
23G54A1	Tank S-111 Review/Verify Profile Sht Complete	3	11JUN99	15JUN99	68	
23G54A2	Tank S-111 Calc Inputs for Time 25% LFL	5	16JUN99	22JUN99	94	
23G54A3	Tank S-111 Calc Inputs for Time 25% LFL	2	23JUN99	24JUN99	94	
23G54A4	Tank S-111 Determn DCRT Time to 25% LFL	2	23JUN99	24JUN99	94	
23G54A5	Tank S-111 Compl Compatability Compliance	6	27JUL99	03AUG99	68	
23G54A6	Tank S-111 Write/Review Issue White Paper	3	04AUG99	06AUG99	68	
23G54A7	Tank S-111 Perform Assessment/Rvw/Approve	5	09AUG99	13AUG99	68	
23G54A8	Tank S-111 Management review & approval	5	16AUG99	20AUG99	68	
23G54B1	Tank S-111 Review ANOVA Results	2	11JUN99	14JUN99	68	
23G54B2	Tank S-111 Gather Process Data (EVAP/FLOW	5	15JUN99	21JUN99	68	
23G54B3	Tank S-111 Perform Calculations	5	22JUN99	28JUN99	68	
23G54B4	Tank S-111 Prepare Appendix to SD	3	29JUN99	01JUL99	68	
23G54B5	Tank S-111 Write Supporting Document	15	02JUL99	26JUL99	68	
23G56A	Tank S-111 Plan OTP	10	04JUN99	17JUN99	84	
23G56B	Tank S-111 Engineering Plan OTP Saltwell Sys	10	04JUN99	17JUN99	84	
23G56D	Tank S-111 Perform OTP	12	09SEP99	24SEP99	28	
23G56E	Tank S-111 OTP Closeout	10	27SEP99	08OCT99	28	
23G60A	Tank S-111 Hydro - Planning (1 Xfr Line) (2)	10	04JUN99	17JUN99	93	
23G60B	Tank S-111 Hydro - Stage Equipment (2)	1	18JUN99	18JUN99	93	
23G60C	Tank S-111 Hydro - Set Up (2)	4	21JUN99	24JUN99	93	
23G60D	Tank S-111 Hydro - Perform Hydro Test (2)	3	25JUN99	29JUN99	93	
23G60E	Tank S-111 Hydro - Reconfig Pits/Restore (2)	5	30JUN99	08JUL99	93	
23G62A	Tank S-111 Pit Jmpr/Mod Cover Blks Planning	20	18JUN99	19JUL99	79	
23G62B	Tank S-111 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	20JUL99	20JUL99	79	
23G62C	Tank S-111 Pit Jmpr/Mod Cover Blks Field Work	3	21JUL99	23JUL99	79	
23G62D	Tank S-111 Pit Jmpr/Mod Cover Blks	1	26JUL99	26JUL99	79	
23G62E	Tank S-111 Pit Jmpr/Mod Cover Blks	2	27JUL99	28JUL99	79	
23G64A	Tank S-111 Planning	10	04JUN99	17JUN99	106	
23G64B	Tank S-111 Stage/Prep Equipment	1	11OCT99	11OCT99	28	
23G64C	Tank S-111 Perf Lance/Install Screen	4	12OCT99	15OCT99	28	

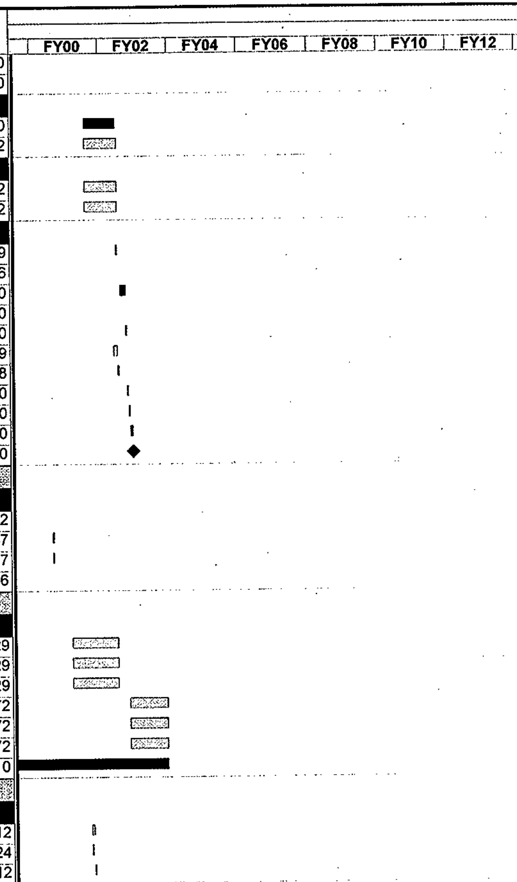
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23G64D	Tank S-111 Restoration	1	18OCT99	18OCT99	28
23G72A	Tank S-111 Write Xfr Procedure for SW Pumping	20	04JUN99	01JUL99	100
23G72B	Tank S-111 Perform Mgt Assessment Pre-Start	2	15OCT99	18OCT99	28
23G72C	Tank S-111 Perform Prereq's for SW Pumping	2	19OCT99	20OCT99	28
1.01.02.01.04.45.11.02 Pump Tank S-111					
23G72D1	Pump Tank S-111	486	01DEC99*	30MAR01	1
23G72D2	Tank S-111 Perf Weekly Flush during SW	334	01DEC99	30MAR01	629
1.01.02.01.04.45.11.03 SWP System Maint & Operability Tank S-111					
23G68A	Tank S-111 (Annual) CM	334	01DEC99	30MAR01	629
23G68B	Tank S-111 (Annual) PM	334	01DEC99	30MAR01	629
1.01.02.01.04.45.11.04 Isolation & Intrusion Prevention Tank S-111					
23G78A1	Tank S-111 Prepare WP for In-Tank Video	5	26MAR01	30MAR01	29
23G78A2	Tank S-111 Perform In-Tank Video	1	02APR01	02APR01	66
23G78B1	Tank S-111 Evaluate SW Pumping Data	60	10MAY01	08JUL01	1
23G78B2	Tank S-111 Evaluate In-Tank Video Data	2	06JUL01	09JUL01	0
23G78B3	Tank S-111 Prep Justif Letter/Declare Complete	10	10JUL01	23JUL01	0
23G80A	Tank S-111 Pit Isolation Design	30	16FEB01	30MAR01	79
23G80B	Tank S-111 Isolation Planning	10	03APR01	16APR01	68
23G80C	Tank S-111 Isolation Stage Equipment	10	24JUL01	06AUG01	0
23G80D	Tank S-111 Isolation Work	10	07AUG01	20AUG01	0
23G80E	Tank S-111 Isolation Complete Documentation	20	21AUG01	18SEP01	0
23GMS	Tank S-111 Tank Stabilization/Isolation Compl	0		18SEP01	0
1.01.02.01.04.45.12 Stabilize and Isolate Tank S-112					
1.01.02.01.04.45.12.01 Prepare Tank S-112 for Pumping					
23H05C	Tank S-112 Per Tank Walkdown	5	16JUL99*	22JUL99	0
23H10A	Tank S-112 Dsn Pumping & Intr Crtl Skid	30	16JUL99	26AUG99	138
23H10D	Tank S-112 Prep/Appr ECN Cover Block Modif.	25	23JUL99	26AUG99	161
23H10E	Tank S-112 Prep Dsn Media to Install FG	25	23JUL99	26AUG99	148
23H10K	Tank S-112 Instl Dsn - SWP Screen	25	23JUL99	26AUG99	0
23H10L	Tank S-112 Instl Dsn - Install Pump Jumper	30	23JUL99	02SEP99	110
23H15A	Tank S-112 Mod Existing Pump Jumper (1 ea)	30	03SEP99	15OCT99	110
23H20A	Tank S-112 Plan/Modify Pump	15	18OCT99	05NOV99	110
23H20B	Tank S-112 Plan Run-In	10	18OCT99	29OCT99	110
23H20C	Tank S-112 Pump Run-In	3	01NOV99	03NOV99	110
23H25A	Tank S-112 Write PM/TSAP	10	16JUL99	29JUL99	41
23H25B	Tank S-112 Plan/Schedule/Obtain Materials	22	16JUL99	16AUG99	41
23H25C	Tank S-112 Obtain Grab Sample	3	14OCT99	18OCT99	0
23H25D	Tank S-112 Analyze Grab Sample	66	19OCT99	25JAN00	0
23H25E	Tank S-112 Issue Lab Analysis Final Report	22	26JAN00	25FEB00	0
23H25F	Tank S-112 Enter Lab Data into TCD	1	28FEB00	28FEB00	0



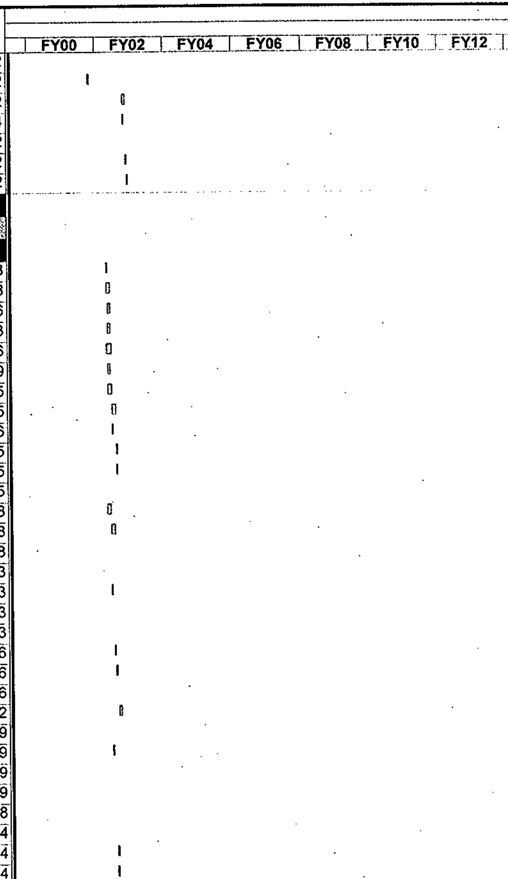
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23H30A	Tank S-112 FGM Planning	10	13AUG99	26AUG99	148
23H30B	Tank S-112 FGM Install	5	27AUG99	02SEP99	148
23H30C	Tank S-112 FGM Perform Calibration	2	09SEP99	10SEP99	148
23H30D	Tank S-112 FGM Perform OTP	3	03SEP99	08SEP99	148
23H45A	Tank S-112 Receive/Install Test PIC	20	27AUG99	24SEP99	138
23H50A	Tank S-112 Saltwell Screen Planning	10	13AUG99	26AUG99	0
23H50B	Tank S-112 Saltwell Screen - Stage & Prep	1	27AUG99	27AUG99	0
23H50C	Tank S-112 Saltwell Screen - Install	2	30AUG99	31AUG99	0
23H50D	Tank S-112 Saltwell Screen - Restoration	1	01SEP99	01SEP99	1,024
23H54A1	Tank S-112 Review/Verify Profile Sht Complete	3	29FEB00	02MAR00	0
23H54A2	Tank S-112 Calc Inputs for Time 25% LFL	5	03MAR00	09MAR00	26
23H54A3	Tank S-112 Calc Inputs for Time 25% LFL	2	10MAR00	13MAR00	26
23H54A4	Tank S-112 Determn DCRT Time to 25% LFL	2	10MAR00	13MAR00	26
23H54A5	Tank S-112 Compl Compatability Compliance	6	11APR00	18APR00	0
23H54A6	Tank S-112 Write/Review Issue White Paper	3	19APR00	21APR00	0
23H54A7	Tank S-112 Perform Assessment/Rvw/Approve	5	24APR00	28APR00	0
23H54A8	Tank S-112 Management review & approval	5	01MAY00	05MAY00	0
23H54B1	Tank S-112 Review ANOVA Results	2	29FEB00	01MAR00	0
23H54B2	Tank S-112 Gather Process Data (EVAP/FLOW	5	02MAR00	08MAR00	0
23H54B3	Tank S-112 Perform Calculations	5	09MAR00	15MAR00	0
23H54B4	Tank S-112 Prepare Appendix to SD	3	16MAR00	20MAR00	0
23H54B5	Tank S-112 Write Supporting Document	15	21MAR00	10APR00	0
23H56A	Tank S-112 Plan OTP	10	16JUL99	29JUL99	166
23H56B	Tank S-112 Engineering Plan OTP Saltwell Sys	10	16JUL99	29JUL99	166
23H56D	Tank S-112 Perform OTP	12	19OCT99	03NOV99	110
23H56E	Tank S-112 OTP Closeout	10	04NOV99	17NOV99	110
23H60A	Tank S-112 Hydro - Planning (1 Xfr Line)	10	16JUL99	29JUL99	175
23H60B	Tank S-112 Hydro - Stage Equipment	1	30JUL99	30JUL99	175
23H60C	Tank S-112 Hydro - Set Up	4	02AUG99	05AUG99	175
23H60D	Tank S-112 Hydro - Perform Hydro Test	3	06AUG99	10AUG99	175
23H60E	Tank S-112 Hydro - Reconfig Pits/Restore	5	11AUG99	17AUG99	175
23H62A	Tank S-112 Pit Jmpr/Mod Cover Blks Planning	20	30JUL99	26AUG99	161
23H62B	Tank S-112 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	27AUG99	27AUG99	161
23H62C	Tank S-112 Pit Jmpr/Mod Cover Blks Field Work	3	30AUG99	01SEP99	161
23H62D	Tank S-112 Pit Jmpr/Mod Cover Blks	1	02SEP99	02SEP99	161
23H62E	Tank S-112 Pit Jmpr/Mod Cover Blks	2	03SEP99	07SEP99	161
23H64A	Tank S-112 Planning	10	16JUL99	29JUL99	188
23H64B	Tank S-112 Stage/Prep Equipment	1	18NOV99	18NOV99	110
23H64C	Tank S-112 Perf Lance/Install Screen	4	19NOV99	24NOV99	110
23H64D	Tank S-112 Restoration.	1	29NOV99	29NOV99	110
23H72A	Tank S-112 Write Xfr Procedure for SW Pumping	20	16JUL99	12AUG99	182

FY00 FY02 FY04 FY06 FY08 FY10 FY12

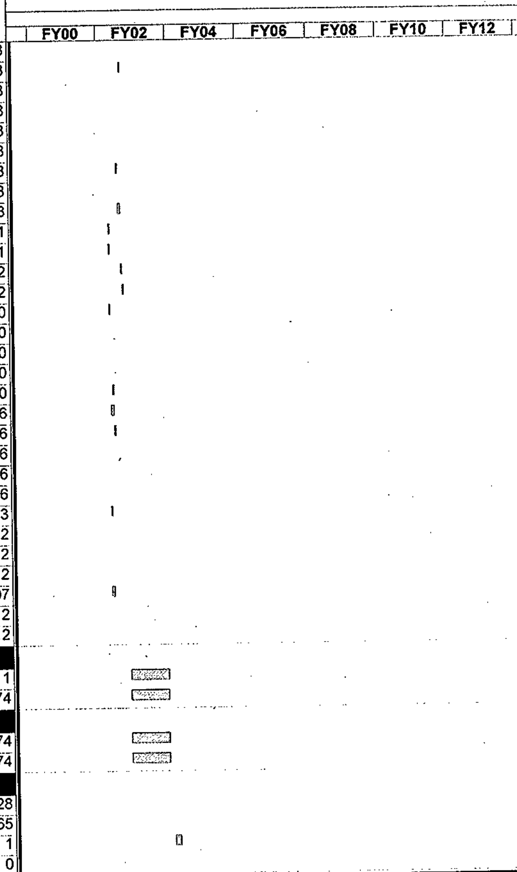
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23H72B	Tank S-112 Perform Mgt Assessment Pre-Start	2	04MAY00	05MAY00	0
23H72C	Tank S-112 Perform Prereq's for SW Pumping	2	08MAY00	09MAY00	0
1.01.02.01.04.45.12.02 Pump Tank S-112					
23H72D1	Pump Tank S-112	334	10MAY00*	08APR01	0
23H72D2	Tank S-112 Perf Weekly Flush during SW	230	10MAY00	10APR01	622
1.01.02.01.04.45.12.03 SWP System Maint & Operability Tank S-112					
23H68A	Tank S-112 (Annual) CM	230	10MAY00	10APR01	622
23H68B	Tank S-112 (Annual) PM	230	10MAY00	10APR01	622
1.01.02.01.04.45.12.04 Isolation & Intrusion Prevention Tank S-112					
23H78A1	Tank S-112 Prepare WP for In-Tank Video	5	03APR01	09APR01	29
23H78A2	Tank S-112 Perform In-Tank Video	1	10APR01	10APR01	66
23H78B1	Tank S-112 Evaluate SW Pumping Data	60	19MAY01	17JUL01	0
23H78B2	Tank S-112 Evaluate In-Tank Video Data	2	16JUL01	17JUL01	0
23H78B3	Tank S-112 Prep Justif Letter/Declare Complete	10	18JUL01	31JUL01	0
23H80A	Tank S-112 Pit Isolation Design	30	27FEB01	09APR01	79
23H80B	Tank S-112 Isolation Planning	10	11APR01	24APR01	68
23H80C	Tank S-112 Isolation Stage Equipment	10	01AUG01	14AUG01	0
23H80D	Tank S-112 Isolation Work	10	15AUG01	28AUG01	0
23H80E	Tank S-112 Isolation Complete Documentation	20	29AUG01	26SEP01	0
23HMS	Tank S-112 Tank Stabilization/Isolation Compl	0		26SEP01	0
1.01.02.01.04.45.20 Tank Ventilation Sys SST 241-S Tank Farm					
1.01.02.01.04.45.20.01 Tank Ventilation Sys SST 241-S Tank Farm					
23B40E	Tank S-102 Installation & Tie-In	6	17MAR99	24MAR99	292
23D40E	Tank S-106 Installation & Tie-In	6	24MAY99	01JUN99	57
23F40E	Tank S-109 Installation & Tie-In	6	24MAY99	01JUN99	77
23G40E	Tank S-111 Installation & Tie-In	6	23AUG99	30AUG99	56
1.01.02.01.04.45.30 DCRT 244-S for SST 241-S Tank Farm					
1.01.02.01.04.45.30.01 DCRT 244-S for SST 241-S Tank Farm					
23G32A	Tank S-111 Prepare WP for DCRT PM's & CM's	334	01DEC99	30MAR01	629
23G32B1	Tank S-111 Perf Preventative Mainte on DCRT	334	01DEC99	30MAR01	629
23G32B2	Tank S-111 Perf Corrective Maintenance on	334	01DEC99	30MAR01	629
23J32A	Tank SX-101 Prepare WP for DCRT PM's &	272	01AUG01	30AUG02	272
23J32B1	Tank SX-101 Perf Preventative Mainte on DCRT	272	01AUG01	30AUG02	272
23J32B2	Tank SX-101 Perf Corrective Maintenance on	272	01AUG01	30AUG02	272
D4 47A	DCRT - Group 4	,110*	01APR98	30AUG02	0
1.01.02.01.04.45.40 241-S Tank Farm Annual Hydro					
1.01.02.01.04.45.40.01 241-S Tank Farm Annual Hydro					
23B74A	Farm S Annual Hydro - Planning (FY99)	15	13JUN00	05JUL00	512
23B74B	Farm S Annual Hydro - Stage Equipment (FY99)	3	13JUN00	15JUN00	524
23B74C	Farm S Annual Hydro - Set Up (FY99)	5	06JUL00	12JUL00	512



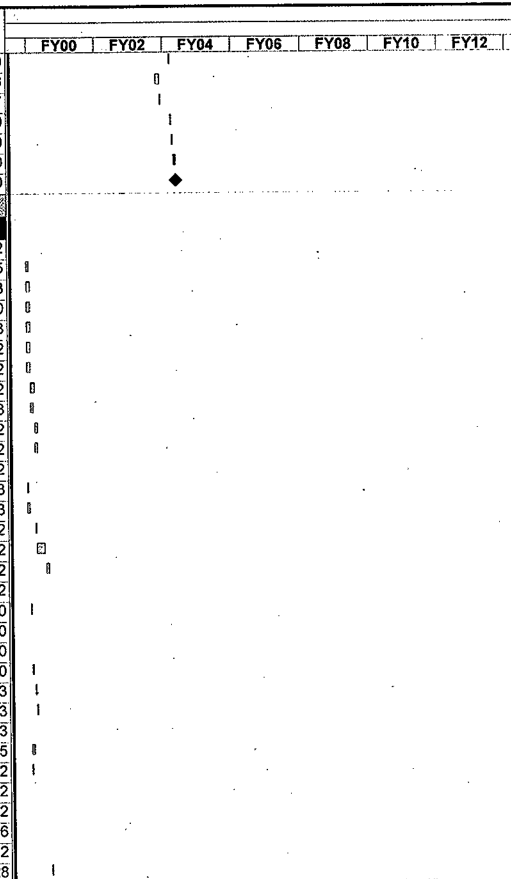
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23B74D	Farm S Annual Hydro - Perform Hydro Test	7	13JUL00	21JUL00	512
23B74E	Farm S Annual Hydro - Reconf Pits/Restore	6	24JUL00	31JUL00	512
23B74F	Farm S Annual Hydro - Planning (FY00)	15	31JUL01	20AUG01	512
23B74G	Farm S Annual Hydro - Stage Equipment (FY00)	3	31JUL01	02AUG01	524
23B74H	Farm S Annual Hydro - Set Up (FY00)	5	21AUG01	27AUG01	512
23B74J	Farm S Annual Hydro - Perform Hydro Test	7	28AUG01	06SEP01	512
23B74K	Farm S Annual Hydro - Reconf Pits/Restore	6	07SEP01	14SEP01	512
1.01.02.01.04.46 SST 241-SX Tank Farm Stabilization/Isolation					
1.01.02.01.04.46.01 Stabilize and Isolate Tank SX-101					
1.01.02.01.04.46.01.01 Prepare Tank SX-101 for Pumping					
23J05C	Tank SX-101 Per Tank Walkdown	5	26JAN01*	01FEB01	28
23J10B	Tank SX-101 Instl Dsn - Upgr Pump/Instr Ctrl	25	26JAN01	02MAR01	68
23J10D	Tank SX-101 Prep/Appr ECN Cover Block Modif.	25	02FEB01	09MAR01	86
23J10E	Tank SX-101 Prep Dsn Media to Install FG	25	02FEB01	09MAR01	73
23J10G	Tank SX-101 Instl Dsn - Dilution System	35	26JAN01	16MAR01	56
23J10K	Tank SX-101 Instl Dsn - SWP Screen	25	02FEB01	09MAR01	89
23J10L	Tank SX-101 Instl Dsn - Install Pump Jumper	30	02FEB01	16MAR01	35
23J15A	Tank SX-101 Mod Existing Pump Jumper (1 ea)	30	19MAR01	27APR01	35
23J15C	Tank SX-101 Fab Dilution System (1 ea)	15	19MAR01	06APR01	56
23J20A	Tank SX-101 Plan/Modify Pump	15	30APR01	18MAY01	35
23J20B	Tank SX-101 Plan Run-In	10	30APR01	11MAY01	35
23J20C	Tank SX-101 Pump Run-In	3	14MAY01	16MAY01	35
23J25D	Tank SX-101 Analyze Grab Sample	29	26JAN01	08MAR01	28
23J25E	Tank SX-101 Issue Lab Analysis Final Report	22	09MAR01	09APR01	28
23J25F	Tank SX-101 Enter Lab Data into TCD	1	10APR01	10APR01	28
23J30A	Tank SX-101 FGM Planning	10	26FEB01	09MAR01	73
23J30B	Tank SX-101 FGM Install	5	12MAR01	16MAR01	73
23J30C	Tank SX-101 FGM Perform Calibration	2	22MAR01	23MAR01	73
23J30D	Tank SX-101 FGM Perform OTP	3	19MAR01	21MAR01	73
23J42A	Tank SX-101 Dilution Sys Planning	10	09APR01	20APR01	56
23J42B	Tank SX-101 Stage Materials and Install	6	23APR01	30APR01	56
23J42D	Tank SX-101 Functional Test	1	01MAY01	01MAY01	56
23J45B	Tank SX-101 Upgrade PIC Skid	20	22MAY01	19JUN01	12
23J50A	Tank SX-101 Saltwell Screen Planning	10	26FEB01	09MAR01	89
23J50B	Tank SX-101 Saltwell Screen - Stage & Prep	1	12MAR01	12MAR01	89
23J50C	Tank SX-101 Saltwell Screen - Install	2	13MAR01	14MAR01	89
23J50D	Tank SX-101 Saltwell Screen - Restoration	1	15MAR01	15MAR01	89
23J54A1	Tank SX-101 Review/Verify Profile Sht Complete	3	11APR01	13APR01	28
23J54A2	Tank SX-101 Calc Inputs for Time 25% LFL	5	16APR01	20APR01	54
23J54A3	Tank SX-101 Calc Inputs for Time 25% LFL	2	23APR01	24APR01	54
23J54A4	Tank SX-101 Determn DCRT Time to 25% LFL	2	23APR01	24APR01	54



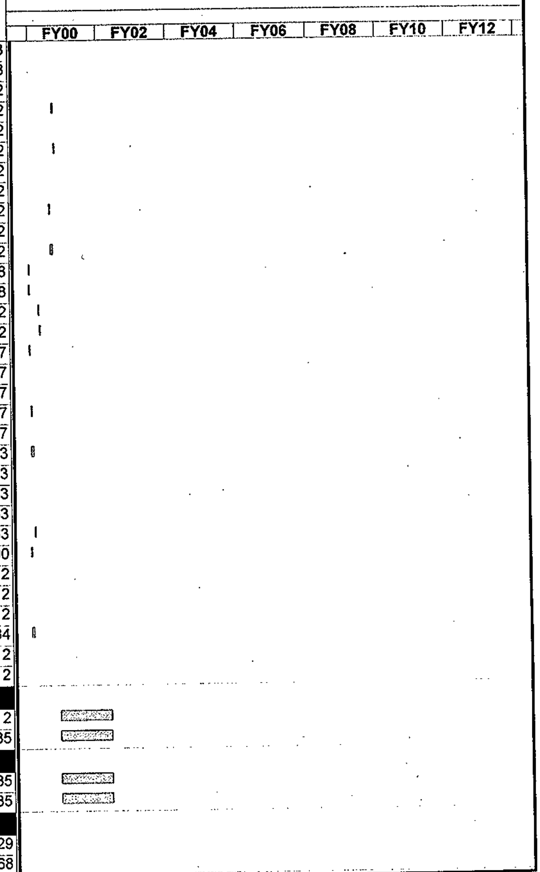
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23J54A5	Tank SX-101 Compl Compatability Compliance	6	23MAY01	31MAY01	28
23J54A6	Tank SX-101 Write/Review Issue White Paper	3	01JUN01	05JUN01	28
23J54A7	Tank SX-101 Perform Assessment/Rvw/Approve	5	06JUN01	12JUN01	28
23J54A8	Tank SX-101 Management review & approval	5	13JUN01	19JUN01	28
23J54B1	Tank SX-101 Review ANOVA Results	2	11APR01	12APR01	28
23J54B2	Tank SX-101 Gather Process Data	5	13APR01	19APR01	28
23J54B3	Tank SX-101 Perform Calculations	5	20APR01	26APR01	28
23J54B4	Tank SX-101 Prepare Appendix to SD	3	27APR01	01MAY01	28
23J54B5	Tank SX-101 Write Supporting Document	15	02MAY01	22MAY01	28
23J56A	Tank SX-101 Plan OTP	10	26JAN01	08FEB01	91
23J56B	Tank SX-101 Engineering Plan OTP Saltwell Sys	10	26JAN01	08FEB01	91
23J56D	Tank SX-101 Perform OTP	12	04JUN01	19JUN01	12
23J56E	Tank SX-101 OTP Closeout	10	20JUN01	03JUL01	12
23J60A	Tank SX-101 Hydro - Planning (1 Xfr Line) (3)	10	26JAN01	08FEB01	100
23J60B	Tank SX-101 Hydro - Stage Equipment (3)	1	09FEB01	09FEB01	100
23J60C	Tank SX-101 Hydro - Set Up (3)	4	12FEB01	15FEB01	100
23J60D	Tank SX-101 Hydro - Perform Hydro Test (3)	3	16FEB01	21FEB01	100
23J60E	Tank SX-101 Hydro - Reconfig Pits/Restore (3)	5	22FEB01	28FEB01	100
23J62A	Tank SX-101 Pit Jmpr/Mod Cover Blks Planning	20	09FEB01	09MAR01	86
23J62B	Tank SX-101 Pit Jmpr/Mod Cover Blks Stage	1	12MAR01	12MAR01	86
23J62C	Tank SX-101 Pit Jmpr/Mod Cover Blks Field	3	13MAR01	15MAR01	86
23J62D	Tank SX-101 Pit Jmpr/Mod Cover Blks	1	16MAR01	16MAR01	86
23J62E	Tank SX-101 Pit Jmpr/Mod Cover Blks	2	19MAR01	20MAR01	86
23J64A	Tank SX-101 Planning	10	26JAN01	08FEB01	113
23J64B	Tank SX-101 Stage/Prep Equipment	1	05JUL01	05JUL01	12
23J64C	Tank SX-101 Perf Lance/Install Screen	4	06JUL01	11JUL01	12
23J64D	Tank SX-101 Restoration	1	12JUL01	12JUL01	12
23J72A	Tank SX-101 Write Xfr Procedure for SW	20	26JAN01	23FEB01	107
23J72B	Tank SX-101 Perform Mgt Assessment Pre-Start	2	11JUL01	12JUL01	12
23J72C	Tank SX-101 Perform Prereq's for SW Pumping	2	13JUL01	16JUL01	12
1.01.02.01.04.46.01.02 Pump Tank SX-101					
23J72D1	Pump Tank SX-101	395	01AUG01*	30AUG02	1
23J72D2	Tank SX-101 Perf Weekly Flush during SW	270	01AUG01	28AUG02	274
1.01.02.01.04.46.01.03 SWP System Maint & Operability Tank SX-101					
23J68A	Tank SX-101 (Annual) CM	270	01AUG01	28AUG02	274
23J68D	Tank SX-101 (Annual) PM	270	01AUG01	28AUG02	274
1.01.02.01.04.46.01.04 Isolation & Intrusion Prevention Tank SX-101					
23J78A1	Tank SX-101 Prepare WP for In-Tank Video	5	26AUG02	30AUG02	28
23J78A2	Tank SX-101 Perform In-Tank Video	1	03SEP02	03SEP02	65
23J78B1	Tank SX-101 Evaluate SW Pumping Data	60	10OCT02	08DEC02	1
23J78B2	Tank SX-101 Evaluate In-Tank Video Data	2	06DEC02	09DEC02	0



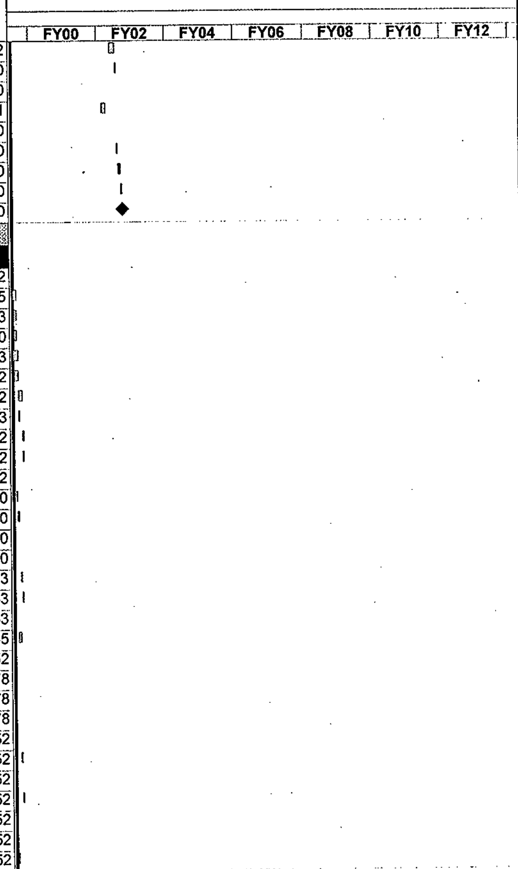
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23J78B3	Tank SX-101 Prep Justif Letter/Declare	10	10DEC02	23DEC02	0
23J80A	Tank SX-101 Pit Isolation Design	30	22JUL02	30AUG02	78
23J80B	Tank SX-101 Isolation Planning	10	04SEP02	17SEP02	67
23J80C	Tank SX-101 Isolation Stage Equipment	10	26DEC02	09JAN03	0
23J80D	Tank SX-101 Isolation Work	10	10JAN03	23JAN03	0
23J80E	Tank SX-101 Isolation Complete Documentation	20	24JAN03	21FEB03	0
23JMS	Tank SX-101 Tank Stabilization/Isolation Compl	0		21FEB03	0
1.01.02.01.04.46.02 Stabilize and Isolate Tank SX-102					
1.01.02.01.04.46.02.01 Prepare Tank SX-102 for Pumping					
23K05C	Tank SX-102 Per Tank Walkdown	5	16SEP98*	22SEP98	2
23K10B	Tank SX-102 Instl Dsn - Upgr Pump/Instr Ctrl	25	16SEP98	20OCT98	145
23K10D	Tank SX-102 Prep/Appr ECN Cover Block Modif.	25	23SEP98	27OCT98	163
23K10E	Tank SX-102 Prep Dsn Media to Install FG	25	23SEP98	27OCT98	150
23K10G	Tank SX-102 Instl Dsn - Dilution System	35	16SEP98	03NOV98	133
23K10K	Tank SX-102 Instl Dsn - SWP Screen	25	23SEP98	27OCT98	2
23K10L	Tank SX-102 Instl Dsn - Install Pump Jumper	30	23SEP98	03NOV98	112
23K15A	Tank SX-102 Mod Existing Pump Jumper (1 ea)	30	04NOV98	17DEC98	112
23K15C	Tank SX-102 Fab Dilution System (1 ea)	15	04NOV98	24NOV98	133
23K20A	Tank SX-102 Plan/Modify Pump	15	18DEC98	12JAN99	112
23K20B	Tank SX-102 Plan Run-In	10	18DEC98	05JAN99	112
23K20C	Tank SX-102 Pump Run-In	3	06JAN99	08JAN99	112
23K25A	Tank SX-102 Write PM/TSAP	10	16SEP98	29SEP98	43
23K25B	Tank SX-102 Plan/Schedule/Obtain Materials	22	16SEP98	15OCT98	43
23K25C	Tank SX-102 Obtain Grab Sample	3	16DEC98	18DEC98	2
23K25D	Tank SX-102 Analyze Grab Sample	66	21DEC98	26MAR99	2
23K25E	Tank SX-102 Issue Lab Analysis Final Report	22	29MAR99	27APR99	2
23K25F	Tank SX-102 Enter Lab Data into TCD	1	28APR99	28APR99	2
23K30A	Tank SX-102 FGM Planning	10	14OCT98	27OCT98	150
23K30B	Tank SX-102 FGM Install	5	28OCT98	03NOV98	150
23K30C	Tank SX-102 FGM Perform Calibration	2	09NOV98	10NOV98	150
23K30D	Tank SX-102 FGM Perform OTP	3	04NOV98	06NOV98	150
23K42A	Tank SX-102 Dilution Sys Planning	10	25NOV98	10DEC98	133
23K42B	Tank SX-102 Stage Materials and Install	6	11DEC98	18DEC98	133
23K42D	Tank SX-102 Functional Test	1	21DEC98	21DEC98	133
23K45B	Tank SX-102 Upgrade PIC Skid	20	21OCT98	17NOV98	145
23K50A	Tank SX-102 Saltwell Screen Planning	10	14OCT98	27OCT98	2
23K50B	Tank SX-102 Saltwell Screen - Stage & Prep	1	28OCT98	28OCT98	2
23K50C	Tank SX-102 Saltwell Screen - Install	2	29OCT98	30OCT98	2
23K50D	Tank SX-102 Saltwell Screen - Restoration	1	02NOV98	02NOV98	166
23K54A1	Tank SX-102 Review/Verify Profile Sht	3	29APR99	03MAY99	2
23K54A2	Tank SX-102 Calc Inputs for Time 25% LFL	5	04MAY99	10MAY99	28



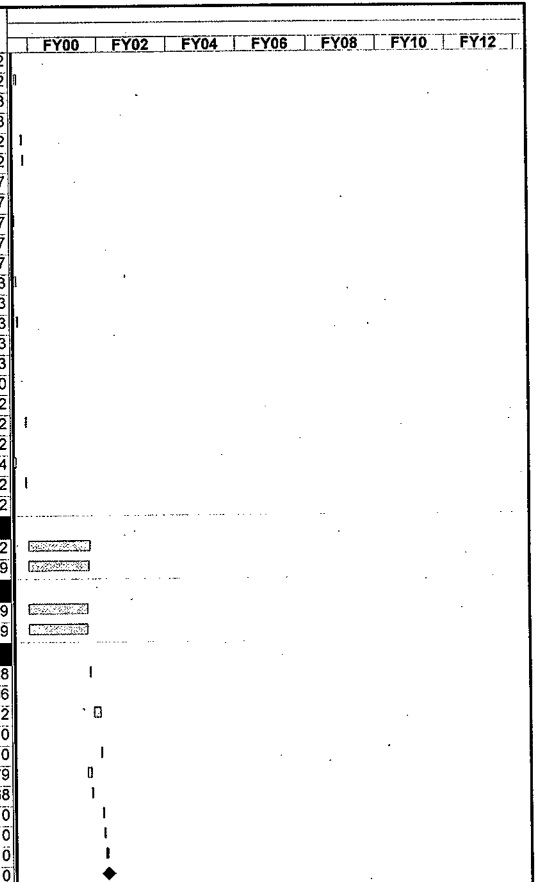
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23K54A3	Tank SX-102 Calc Inputs for Time 25% LFL	2	11MAY99	12MAY99	28
23K54A4	Tank SX-102 Determn DCRT Time to 25% LFL	2	11MAY99	12MAY99	28
23K54A5	Tank SX-102 Compl Compatability Compliance	6	11JUN99	18JUN99	2
23K54A6	Tank SX-102 Write/Review Issue White Paper	3	21JUN99	23JUN99	2
23K54A7	Tank SX-102 Perform	5	24JUN99	30JUN99	2
23K54A8	Tank SX-102 Management review & approval	5	01JUL99	09JUL99	2
23K54B1	Tank SX-102 Review ANOVA Results	2	29APR99	30APR99	2
23K54B2	Tank SX-102 Gather Process Data	5	03MAY99	07MAY99	2
23K54B3	Tank SX-102 Perform Calculations	5	10MAY99	14MAY99	2
23K54B4	Tank SX-102 Prepare Appendix to SD	3	17MAY99	19MAY99	2
23K54B5	Tank SX-102 Write Supporting Document	15	20MAY99	10JUN99	2
23K56A	Tank SX-102 Plan OTP	10	16SEP98	29SEP98	168
23K56B	Tank SX-102 Engineering Plan OTP Saltwell Sys	10	16SEP98	29SEP98	168
23K56D	Tank SX-102 Perform OTP	12	21DEC98	08JAN99	112
23K56E	Tank SX-102 OTP Closeout	10	11JAN99	22JAN99	112
23K60A	Tank SX-102 Hydro - Planning (1 Xfr Line)	10	16SEP98	29SEP98	177
23K60B	Tank SX-102 Hydro - Stage Equipment	1	30SEP98	30SEP98	177
23K60C	Tank SX-102 Hydro - Set Up	4	01OCT98	06OCT98	177
23K60D	Tank SX-102 Hydro - Perform Hydro Test	3	07OCT98	09OCT98	177
23K60E	Tank SX-102 Hydro - Reconfig Pits/Restore	5	12OCT98	16OCT98	177
23K62A	Tank SX-102 Pit Jmpr/Mod Cover Blks Planning	20	30SEP98	27OCT98	163
23K62B	Tank SX-102 Pit Jmpr/Mod Cover Blks Stage	1	28OCT98	28OCT98	163
23K62C	Tank SX-102 Pit Jmpr/Mod Cover Blks Field	3	29OCT98	02NOV98	163
23K62D	Tank SX-102 Pit Jmpr/Mod Cover Blks	1	03NOV98	03NOV98	163
23K62E	Tank SX-102 Pit Jmpr/Mod Cover Blks	2	04NOV98	05NOV98	163
23K64A	Tank SX-102 Planning	10	16SEP98	29SEP98	190
23K64B	Tank SX-102 Stage/Prep Equipment	1	25JAN99	25JAN99	112
23K64C	Tank SX-102 Perf Lance/Install Screen	4	26JAN99	29JAN99	112
23K64D	Tank SX-102 Restoration	1	01FEB99	01FEB99	112
23K72A	Tank SX-102 Write Xfr Procedure for SW	20	16SEP98	13OCT98	184
23K72B	Tank SX-102 Perform Mgt Assessment Pre-Start	2	08JUL99	09JUL99	2
23K72C	Tank SX-102 Perform Prereq's for SW Pumping	2	12JUL99	13JUL99	2
1.01.02.01.04.46.02.02 Pump Tank SX-102					
23K72D1	Pump Tank SX-102	548	14JUL99*	11JAN01	2
23K72D2	Tank SX-102 Perf Weekly Flush during SW	375	14JUL99	10JAN01	685
1.01.02.01.04.46.02.03 SWP System Maint & Operability Tank SX-102					
23K68A	Tank SX-102 (Annual) CM	375	14JUL99	10JAN01	685
23K68D	Tank SX-102 (Annual) PM	375	14JUL99	10JAN01	685
1.01.02.01.04.46.02.04 Isolation & Intrusion Prevention Tank SX-102					
23K78A1	Tank SX-102 Prepare WP for In-Tank Video	5	05JAN01	11JAN01	29
23K78A2	Tank SX-102 Perform In-Tank Video	1	12JAN01	12JAN01	68



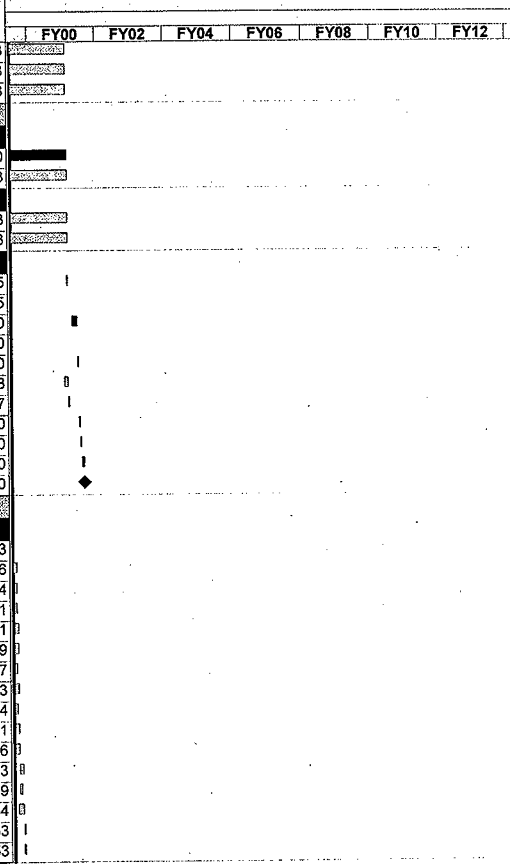
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23K78B1	Tank SX-102 Evaluate SW Pumping Data	60	21FEB01	21APR01	2
23K78B2	Tank SX-102 Evaluate In-Tank Video Data	2	20APR01	23APR01	0
23K78B3	Tank SX-102 Prep Justif Letter/Declare	10	24APR01	07MAY01	0
23K80A	Tank SX-102 Pit Isolation Design	30	28NOV00	11JAN01	81
23K80B	Tank SX-102 Isolation Planning	10	15JAN01	26JAN01	70
23K80C	Tank SX-102 Isolation Stage Equipment	10	08MAY01	21MAY01	0
23K80D	Tank SX-102 Isolation Work	10	22MAY01	05JUN01	0
23K80E	Tank SX-102 Isolation Complete Documentation	20	06JUN01	03JUL01	0
23KMS	Tank SX-102 Tank Stabilization/Isolation Compl	0		03JUL01	0
1.01.02.01.04.46.03 Stabilize and Isolate Tank SX-103					
1.01.02.01.04.46.03.01 Prepare Tank SX-103 for Pumping					
23L05C	Tank SX-103 Per Tank Walkdown	5	01APR98	07APR98	12
23L10B	Tank SX-103 Instl Dsn - Upgr Pump/Instr Ctrl	25	01APR98	05MAY98	45
23L10D	Tank SX-103 Prep/Appr ECN Cover Block Modif.	25	08APR98	12MAY98	63
23L10E	Tank SX-103 Prep Dsn Media to Install FG	25	08APR98	12MAY98	50
23L10G	Tank SX-103 Instl Dsn - Dilution System	35	01APR98	19MAY98	33
23L10L	Tank SX-103 Instl Dsn - Install Pump Jumper	30	08APR98	19MAY98	12
23L15A	Tank SX-103 Mod Existing Pump Jumper (1 ea)	30	20MAY98	01JUL98	12
23L15C	Tank SX-103 Fab Dilution System (1 ea)	15	20MAY98	10JUN98	33
23L20A	Tank SX-103 Plan/Modify Pump	15	06JUL98	24JUL98	12
23L20B	Tank SX-103 Plan Run-In	10	06JUL98	17JUL98	12
23L20C	Tank SX-103 Pump Run-In	3	20JUL98	22JUL98	12
23L30A	Tank SX-103 FGM Planning	10	29APR98	12MAY98	50
23L30B	Tank SX-103 FGM Install	5	13MAY98	19MAY98	50
23L30C	Tank SX-103 FGM Perform Calibration	2	26MAY98	27MAY98	50
23L30D	Tank SX-103 FGM Perform OTP	3	20MAY98	22MAY98	50
23L42A	Tank SX-103 Dilution Sys Planning	10	11JUN98	24JUN98	33
23L42B	Tank SX-103 Stage Materials and Install	6	25JUN98	06JUL98	33
23L42D	Tank SX-103 Functional Test	1	07JUL98	07JUL98	33
23L45B	Tank SX-103 Upgrade PIC Skid	20	06MAY98	03JUN98	45
23L54A1	Tank SX-103 Review/Verify Profile Sht Complete	3	08APR98	10APR98	52
23L54A2	Tank SX-103 Calc Inputs for Time 25% LFL	5	13APR98	17APR98	78
23L54A3	Tank SX-103 Calc Inputs for Time 25% LFL	2	20APR98	21APR98	78
23L54A4	Tank SX-103 Determn DCRT Time to 25% LFL	2	20APR98	21APR98	78
23L54A5	Tank SX-103 Compl Compatability Compliance	6	20MAY98	28MAY98	52
23L54A6	Tank SX-103 Write/Review Issue White Paper	3	29MAY98	02JUN98	52
23L54A7	Tank SX-103 Perform Assessment/Rvw/Approve	5	03JUN98	09JUN98	52
23L54A8	Tank SX-103 Management review & approval	5	10JUN98	16JUN98	52
23L54B1	Tank SX-103 Review ANOVA Results	2	08APR98	09APR98	52
23L54B2	Tank SX-103 Gather Process Data	5	10APR98	16APR98	52
23L54B3	Tank SX-103 Perform Calculations	5	17APR98	23APR98	52



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23L54B4	Tank SX-103 Prepare Appendix to SD	3	24APR98	28APR98	52
23L54B5	Tank SX-103 Write Supporting Document	15	29APR98	19MAY98	52
23L56A	Tank SX-103 Plan OTP	10	01APR98	14APR98	68
23L56B	Tank SX-103 Engineering Plan OTP Saltwell Sys	10	01APR98	14APR98	68
23L56D	Tank SX-103 Perform OTP	12	07JUL98	22JUL98	12
23L56E	Tank SX-103 OTP Closeout	10	23JUL98	05AUG98	12
23L60A	Tank SX-103 Hydro - Planning (1 Xfr Line) (2)	10	01APR98	14APR98	77
23L60B	Tank SX-103 Hydro - Stage Equipment (2)	1	15APR98	15APR98	77
23L60C	Tank SX-103 Hydro - Set Up (2)	4	16APR98	21APR98	77
23L60D	Tank SX-103 Hydro - Perform Hydro Test (2)	3	22APR98	24APR98	77
23L60E	Tank SX-103 Hydro - Reconfig Pits/Restore (2)	5	27APR98	01MAY98	77
23L62A	Tank SX-103 Pit Jmpr/Mod Cover Blks Planning	20	15APR98	12MAY98	63
23L62B	Tank SX-103 Pit Jmpr/Mod Cover Blks Stage	1	13MAY98	13MAY98	63
23L62C	Tank SX-103 Pit Jmpr/Mod Cover Blks Field	3	14MAY98	18MAY98	63
23L62D	Tank SX-103 Pit Jmpr/Mod Cover Blks	1	19MAY98	19MAY98	63
23L62E	Tank SX-103 Pit Jmpr/Mod Cover Blks	2	20MAY98	21MAY98	63
23L64A	Tank SX-103 Planning	10	01APR98	14APR98	90
23L64B	Tank SX-103 Stage/Prep Equipment	1	06AUG98	06AUG98	12
23L64C	Tank SX-103 Perf Lance/Install Screen	4	07AUG98	12AUG98	12
23L64D	Tank SX-103 Restoration	1	13AUG98	13AUG98	12
23L72A	Tank SX-103 Write Xfr Procedure for SW	20	01APR98	28APR98	84
23L72B	Tank SX-103 Perform Mgt Assessment Pre-Start	2	12AUG98	13AUG98	12
23L72C	Tank SX-103 Perform Prereq's for SW Pumping	2	14AUG98	17AUG98	12
1.01.02.01.04.46.03.02 Pump Tank SX-103					
23L72D1	Pump Tank SX-103	654	01SEP98*	15JUN00	2
23L72D2	Tank SX-103 Perf Weekly Flush during SW	447	01SEP98	12JUN00	829
1.01.02.01.04.46.03.03 SWP System Maint & Operability Tank SX-103					
23L68A	Tank SX-103 (Annual) CM	437	01SEP98	26MAY00	839
23L68D	Tank SX-103 (Annual) PM	437	01SEP98	26MAY00	839
1.01.02.01.04.46.03.04 Isolation & Intrusion Prevention Tank SX-103					
23L78A1	Tank SX-103 Prepare WP for In-Tank Video	5	09JUN00	15JUN00	28
23L78A2	Tank SX-103 Perform In-Tank Video	1	16JUN00	16JUN00	66
23L78B1	Tank SX-103 Evaluate SW Pumping Data	60	26JUL00	23SEP00	2
23L78B2	Tank SX-103 Evaluate In-Tank Video Data	2	22SEP00	25SEP00	0
23L78B3	Tank SX-103 Prep Justif Letter/Declare	10	26SEP00	09OCT00	0
23L80A	Tank SX-103 Pit Isolation Design	30	04MAY00	15JUN00	79
23L80B	Tank SX-103 Isolation Planning	10	19JUN00	30JUN00	68
23L80C	Tank SX-103 Isolation Stage Equipment	10	10OCT00	23OCT00	0
23L80D	Tank SX-103 Isolation Work	10	24OCT00	06NOV00	0
23L80E	Tank SX-103 Isolation Complete Documentation	20	07NOV00	06DEC00	0
23LMS	Tank SX-103 Tank Stabilization/Isolation Compl	0		06DEC00	0



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23M32A	Tank SX-104 Prepare WP for DCRT PM's &	409	01APR98	12NOV99	973
23M32B1	Tank SX-104 Perf Preventative Mainte on DCRT	409	01APR98	12NOV99	973
23M32B2	Tank SX-104 Perf Corrective Maintenance on	409	01APR98	12NOV99	973
1.01.02.01.04.46.04 Stabilize and Isolate Tank SX-104					
1.01.02.01.04.46.04.02 Pump Tank SX-104					
23M72D1	Pump Tank SX-104	609	01APR98*	30NOV99	0
23M72D2	Tank SX-104 Perf Weekly Flush during SW	419	01APR98	30NOV99	963
1.01.02.01.04.46.04.03 SWP System Maint & Operability Tank SX-104					
23M68A	Tank SX-104 (Annual) CM	419	01APR98	30NOV99	963
23M68D	Tank SX-104 (Annual) PM Skid Mounted	419	01APR98	30NOV99	963
1.01.02.01.04.46.04.04 Isolation & Intrusion Prevention Tank SX-104					
23M78A1	Tank SX-104 Prepare WP for In-Tank Video	5	22NOV99	30NOV99	25
23M78A2	Tank SX-104 Perform In-Tank Video	1	01DEC99	01DEC99	65
23M78B1	Tank SX-104 Evaluate SW Pumping Data	60	10JAN00	09MAR00	0
23M78B2	Tank SX-104 Evaluate In-Tank Video Data	2	08MAR00	09MAR00	0
23M78B3	Tank SX-104 Prep Justif Letter/Declare	10	10MAR00	23MAR00	0
23M80A	Tank SX-104 Pit Isolation Design	30	18OCT99	30NOV99	78
23M80B	Tank SX-104 Isolation Planning	10	02DEC99	15DEC99	67
23M80C	Tank SX-104 Isolation Stage Equipment	10	24MAR00	06APR00	0
23M80D	Tank SX-104 Isolation Work	10	07APR00	20APR00	0
23M80E	Tank SX-104 Isolation Complete Documentation	20	21APR00	18MAY00	0
23MMS	Tank SX-104 Tank Stabilization/Isolation Compl	0		18MAY00	0
1.01.02.01.04.46.05 Stabilize and Isolate Tank SX-105					
1.01.02.01.04.46.05.01 Prepare Tank SX-105 for Pumping					
23N05C	Tank SX-105 Per Tank Walkdown	5	01APR98	07APR98	53
23N10B	Tank SX-105 Instl Dsn - Upgr Pump/Instr Ctrl	25	01APR98	05MAY98	86
23N10D	Tank SX-105 Prep/Appr ECN Cover Block Modif.	25	08APR98	12MAY98	104
23N10E	Tank SX-105 Prep Dsn Media to Install FG	25	08APR98	12MAY98	91
23N10F	Tank SX-105 Prep/Appr ECN Upgrade Leak	35	08APR98	27MAY98	61
23N10G	Tank SX-105 Instl Dsn - Dilution System	35	08APR98	27MAY98	79
23N10K	Tank SX-105 Instl Dsn - SWP Screen	25	08APR98	12MAY98	107
23N10L	Tank SX-105 Instl Dsn - Install Pump Jumper	30	08APR98	19MAY98	53
23N10M	Tank SX-105 Instl Dsn - Instl Vlv Pit Jump (2)	25	08APR98	12MAY98	64
23N10S	Tank SX-105 Instl Dsn - Infr Heat Tracte	35	08APR98	27MAY98	61
23N10U	Tank SX-105 Instl Dsn - Infrastruc (Elect)	35	08APR98	27MAY98	56
23N15A	Tank SX-105 Mod Existing Pump Jumper (1 ea)	30	20MAY98	01JUL98	53
23N15C	Tank SX-105 Fab Dilution System (1 ea)	15	28MAY98	17JUN98	79
23N15D	Tank SX-105 Fab Pit Valve Jumpers 26)	40	13MAY98	10JUL98	64
23N20A	Tank SX-105 Plan/Modify Pump	15	06JUL98	24JUL98	53
23N20B	Tank SX-105 Plan Run-In	10	06JUL98	17JUL98	53

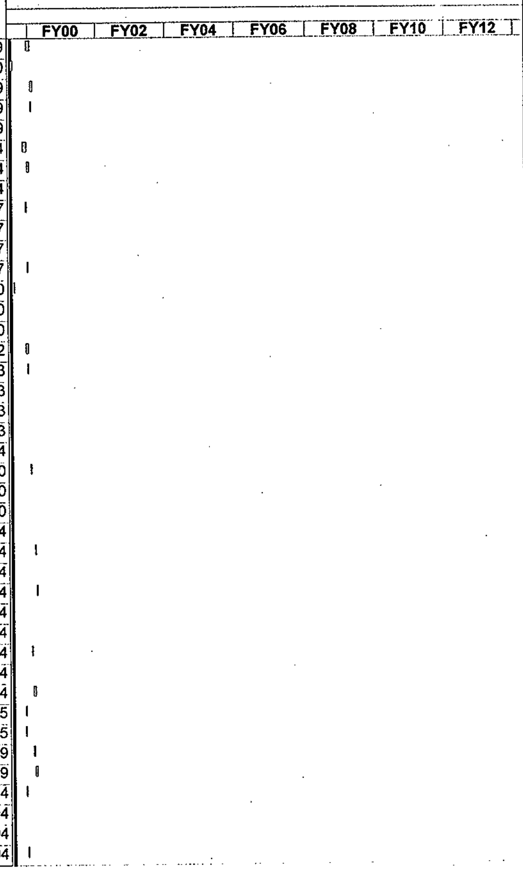


Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23N20C	Tank SX-105 Pump Run-In	3	20JUL98	22JUL98	53
23N25D	Tank SX-105 Analyze Grab Sample	66	01APR98	06JUL98	9
23N25E	Tank SX-105 Issue Lab Analysis Final Report	22	07JUL98	05AUG98	9
23N25F	Tank SX-105 Enter Lab Data into TCD	1	06AUG98	06AUG98	9
23N30A	Tank SX-105 FGM Planning	10	29APR98	12MAY98	91
23N30B	Tank SX-105 FGM Install	5	13MAY98	19MAY98	91
23N30C	Tank SX-105 FGM Perform Calibration	2	16JUL98	17JUL98	56
23N30D	Tank SX-105 FGM Perform OTP	3	13JUL98	15JUL98	56
23N42A	Tank SX-105 Dilution Sys Planning	10	04JUN98	17JUN98	79
23N42B	Tank SX-105 Stage Materials and Install	6	18JUN98	25JUN98	79
23N42D	Tank SX-105 Functional Test	1	10JUL98	10JUL98	71
23N45B	Tank SX-105 Upgrade PIC Skid	20	11JUN98	10JUL98	61
23N50A	Tank SX-105 Saltwell Screen Planning	10	29APR98	12MAY98	107
23N50B	Tank SX-105 Saltwell Screen - Stage & Prep	1	13MAY98	13MAY98	107
23N50C	Tank SX-105 Saltwell Screen - Install	2	14MAY98	15MAY98	107
23N50D	Tank SX-105 Saltwell Screen - Restoration	1	18MAY98	18MAY98	107
23N52A	Tank SX-105 Upgr Infr - Electrical	30	28MAY98	10JUL98	56
23N52C	Tank SX-105 Upgr Infr - Leak Detectors	30	28MAY98	10JUL98	61
23N52D	Tank SX-105 Upgr Infr - Heat Trace	30	28MAY98	10JUL98	61
23N52E	Tank SX-105 Upgr Infr - Instrument Upgrades	30	28MAY98	10JUL98	61
23N54A1	Tank SX-105 Review/Verify Profile Sht	3	07AUG98	11AUG98	9
23N54A2	Tank SX-105 Calc Inputs for Time 25% LFL	5	12AUG98	18AUG98	35
23N54A3	Tank SX-105 Calc Inputs for Time 25% LFL	2	19AUG98	20AUG98	35
23N54A4	Tank SX-105 Determn DCRT Time to 25% LFL	2	19AUG98	20AUG98	35
23N54A5	Tank SX-105 Compl Compatability Compliance	6	21SEP98	28SEP98	9
23N54A6	Tank SX-105 Write/Review Issue White Paper	3	29SEP98	01OCT98	9
23N54A7	Tank SX-105 Perform	5	02OCT98	08OCT98	9
23N54A8	Tank SX-105 Management review & approval	5	09OCT98	15OCT98	9
23N54B1	Tank SX-105 Review ANOVA Results	2	07AUG98	10AUG98	9
23N54B2	Tank SX-105 Gather Process Data	5	11AUG98	17AUG98	9
23N54B3	Tank SX-105 Perform Calculations	5	18AUG98	24AUG98	9
23N54B4	Tank SX-105 Prepare Appendix to SD	3	25AUG98	27AUG98	9
23N54B5	Tank SX-105 Write Supporting Document	15	28AUG98	18SEP98	9
23N56A	Tank SX-105 Plan OTP	10	01APR98	14APR98	109
23N56B	Tank SX-105 Engineering Plan OTP Saltwell Sys	10	01APR98	14APR98	109
23N56D	Tank SX-105 Perform OTP	12	07JUL98	22JUL98	53
23N56E	Tank SX-105 OTP Closeout	10	23JUL98	05AUG98	53
23N60A	Tank SX-105 Hydro - Planning (1 Xfr Line)	10	01APR98	14APR98	118
23N60B	Tank SX-105 Hydro - Stage Equipment	1	15APR98	15APR98	118
23N60C	Tank SX-105 Hydro - Set Up	4	16APR98	21APR98	118
23N60D	Tank SX-105 Hydro - Perform Hydro Test	3	22APR98	24APR98	118

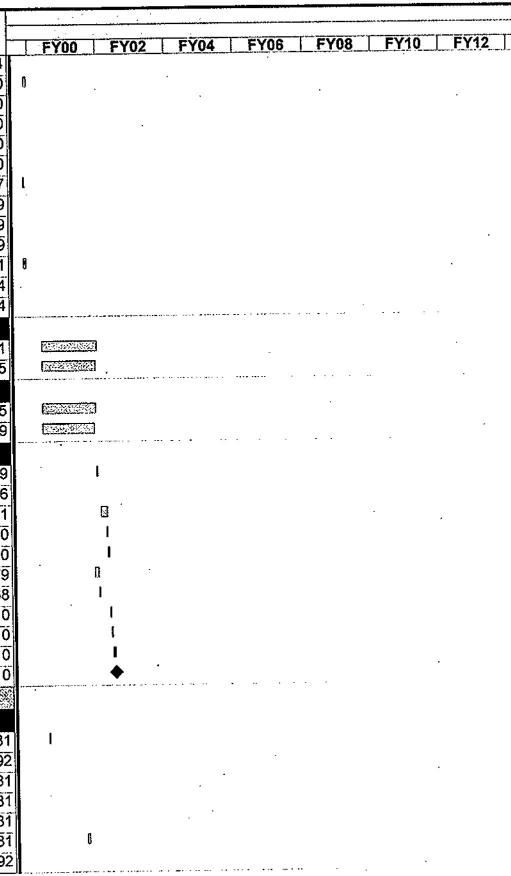
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23N60E	Tank SX-105 Hydro - Reconfig Pits/Restore	5	27APR98	01MAY98	118
23N62A	Tank SX-105 Pit Jmpr/Mod Cover Blks Planning	20	11JUN98	10JUL98	64
23N62B	Tank SX-105 Pit Jmpr/Mod Cover Blks Stage	1	13JUL98	13JUL98	64
23N62C	Tank SX-105 Pit Jmpr/Mod Cover Blks Field	3	14JUL98	16JUL98	64
23N62D	Tank SX-105 Pit Jmpr/Mod Cover Blks	1	17JUL98	17JUL98	64
23N62E	Tank SX-105 Pit Jmpr/Mod Cover Blks	2	20JUL98	21JUL98	64
23N64A	Tank SX-105 Planning	10	01APR98	14APR98	131
23N64B	Tank SX-105 Stage/Prep Equipment	1	06AUG98	06AUG98	53
23N64C	Tank SX-105 Perf Lance/Install Screen	4	07AUG98	12AUG98	53
23N64D	Tank SX-105 Restoration	1	13AUG98	13AUG98	53
23N72A	Tank SX-105 Write Xfr Procedure for SW	20	01APR98	28APR98	125
23N72B	Tank SX-105 Perform Mgt Assessment Pre-Start	2	14OCT98	15OCT98	9
23N72C	Tank SX-105 Perform Prereq's for SW Pumping	2	16OCT98	19OCT98	9
1.01.02.01.04.46.05.02 Pump Tank SX-105					
23N72D1	Pump Tank SX-105	729	01NOV98*	29OCT00	0
23N72D2	Tank SX-105 Perf Weekly Flush during SW	501	02NOV98	30OCT00	732
1.01.02.01.04.46.05.03 SWP System Maint & Operability Tank SX-105					
23N68A	Tank SX-105 (Annual) CM	493	02NOV98	18OCT00	732
23N68D	Tank SX-105 (Annual) PM Skid Mounted	501	02NOV98	30OCT00	732
1.01.02.01.04.46.05.04 Isolation & Intrusion Prevention Tank SX-105					
23N78A1	Tank SX-105 Prepare WP for In-Tank Video	5	24OCT00	30OCT00	27
23N78A2	Tank SX-105 Perform In-Tank Video	1	31OCT00	31OCT00	63
23N78B1	Tank SX-105 Evaluate SW Pumping Data	60	09DEC00	06FEB01	0
23N78B2	Tank SX-105 Evaluate In-Tank Video Data	2	05FEB01	06FEB01	0
23N78B3	Tank SX-105 Prep Justif Letter/Declare	10	07FEB01	21FEB01	0
23N80A	Tank SX-105 Pit Isolation Design	30	19SEP00	30OCT00	76
23N80B	Tank SX-105 Isolation Planning	10	01NOV00	14NOV00	65
23N80C	Tank SX-105 Isolation Stage Equipment	10	22FEB01	07MAR01	0
23N80D	Tank SX-105 Isolation Work	10	08MAR01	21MAR01	0
23N80E	Tank SX-105 Isolation Complete Documentation	20	22MAR01	18APR01	0
23NMS	Tank SX-105 Tank Stabilization/Isolation Compl	0		18APR01	0
1.01.02.01.04.46.06 Stabilize and Isolate Tank SX-106					
1.01.02.01.04.46.06.01 Prepare Tank SX-106 for Pumping					
23P05C	Tank SX-106 Per Tank Walkdown	5	03AUG98*	07AUG98	24
23P10B	Tank SX-106 Instl Dsn - Upgr Pump/Instr Ctrl	25	03AUG98	04SEP98	62
23P10D	Tank SX-106 Prep/Appr ECN Cover Block Modif.	25	10AUG98	14SEP98	80
23P10E	Tank SX-106 Prep Dsn Media to Install FG	25	10AUG98	14SEP98	67
23P10G	Tank SX-106 Instl Dsn - Instl Dilution Sys	35	10AUG98	28SEP98	73
23P10K	Tank SX-106 Instl Dsn - SWP Screen	25	10AUG98	14SEP98	83
23P10L	Tank SX-106 Instl Dsn - Install Pump Jumper	30	10AUG98	21SEP98	29

FY00 FY02 FY04 FY06 FY08 FY10 FY12

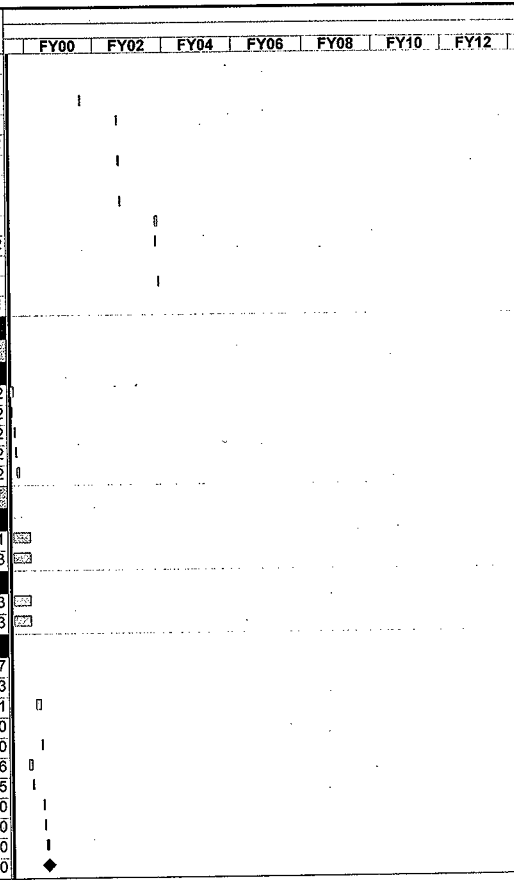
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23P15A	Tank SX-106 Mod Existing Pump Jumper (1 ea)	30	22SEP98	02NOV98	29
23P15C	SX-106 Fab Dilution System (1 ea)	15	01APR98	21APR98	170
23P20A	Tank SX-106 Plan/Modify Pump	15	03NOV98	23NOV98	29
23P20B	Tank SX-106 Plan Run-In	10	03NOV98	16NOV98	29
23P20C	Tank SX-106 Pump Run-In	3	17NOV98	19NOV98	29
23P25D	Tank SX-106 Analyze Grab Sample	27	03AUG98	09SEP98	24
23P25E	Tank SX-106 Issue Lab Analysis Final Report	22	10SEP98	09OCT98	24
23P25F	Tank SX-106 Enter Lab Data into TCD	1	12OCT98	12OCT98	24
23P30A	Tank SX-106 FGM Planning	10	31AUG98	14SEP98	67
23P30B	Tank SX-106 FGM Install	5	15SEP98	21SEP98	67
23P30C	Tank SX-106 FGM Perform Calibration	2	25SEP98	28SEP98	67
23P30D	Tank SX-106 FGM Perform OTP	3	22SEP98	24SEP98	67
23P42A	Tank SX-106 Dilution Sys Planning	10	22APR98	05MAY98	170
23P42B	Tank SX-106 Stage Materials and Install	6	06MAY98	13MAY98	170
23P42D	Tank SX-106 Functional Test	1	14MAY98	14MAY98	170
23P45B	Tank SX-106 Upgrade PIC Skid	20	08SEP98	05OCT98	62
23P50A	Tank SX-106 Saltwell Screen Planning	10	15SEP98	28SEP98	73
23P50B	Tank SX-106 Saltwell Screen - Stage & Prep	1	29SEP98	29SEP98	73
23P50C	Tank SX-106 Saltwell Screen - Install	2	30SEP98	01OCT98	73
23P50D	Tank SX-106 Saltwell Screen - Restoration	1	02OCT98	02OCT98	73
23P54A1	Tank SX-106 Review/Verify Profile Sht Complete	3	13OCT98	15OCT98	24
23P54A2	Tank SX-106 Calc Inputs for Time 25% LFL	5	16OCT98	22OCT98	50
23P54A3	Tank SX-106 Calc Inputs for Time 25% LFL	2	23OCT98	26OCT98	50
23P54A4	Tank SX-106 Determn DCRT Time to 25% LFL	2	23OCT98	26OCT98	50
23P54A5	Tank SX-106 Compl Compatability Compliance	6	24NOV98	03DEC98	24
23P54A6	Tank SX-106 Write/Review Issue White Paper	3	04DEC98	08DEC98	24
23P54A7	Tank SX-106 Perform Assessment/Rvw/Approve	5	09DEC98	15DEC98	24
23P54A8	Tank SX-106 Management review & approval	5	16DEC98	22DEC98	24
23P54B1	Tank SX-106 Review ANOVA Results	2	13OCT98	14OCT98	24
23P54B2	Tank SX-106 Gather Process Data	5	15OCT98	21OCT98	24
23P54B3	Tank SX-106 Perform Calculations	5	22OCT98	28OCT98	24
23P54B4	Tank SX-106 Prepare Appendix to SD	3	29OCT98	02NOV98	24
23P54B5	Tank SX-106 Write Supporting Document	15	03NOV98	23NOV98	24
23P56A	Tank SX-106 Plan OTP	10	03AUG98	14AUG98	85
23P56B	Tank SX-106 Engineering Plan OTP Saltwell Sys	10	03AUG98	14AUG98	85
23P56D	Tank SX-106 Perform OTP	12	04NOV98	19NOV98	29
23P56E	Tank SX-106 OTP Closeout	10	20NOV98	07DEC98	29
23P60A	Tank SX-106 Hydro - Planning (1 Xfr Line)	10	03AUG98	14AUG98	94
23P60B	Tank SX-106 Hydro - Stage Equipment	1	17AUG98	17AUG98	94
23P60C	Tank SX-106 Hydro - Set Up	4	18AUG98	21AUG98	94
23P60D	Tank SX-106 Hydro - Perform Hydro Test	3	24AUG98	26AUG98	94



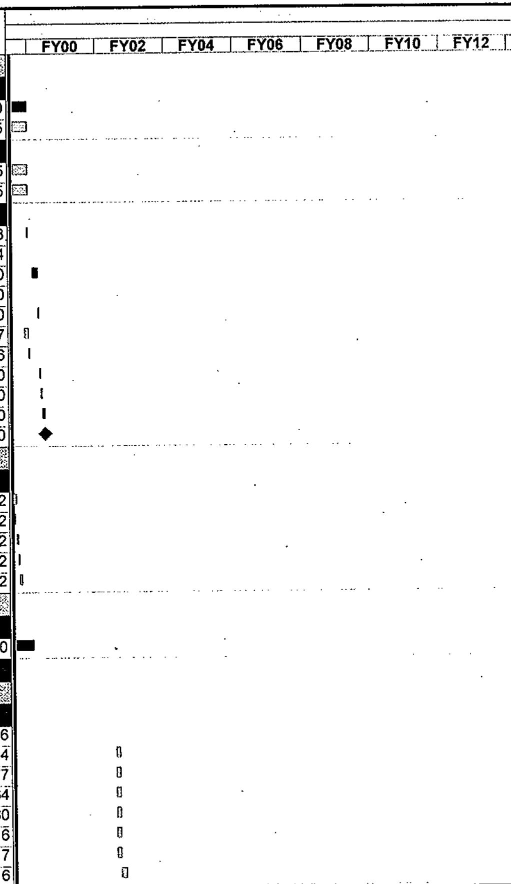
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23P60E	Tank SX-106 Hydro - Reconfig Pits/Restore	5	27AUG98	02SEP98	94
23P62A	Tank SX-106 Pit Jmpr/Mod Cover Blks Planning	20	17AUG98	14SEP98	80
23P62B	Tank SX-106 Pit Jmpr/Mod Cover Blks Stage	1	15SEP98	15SEP98	80
23P62C	Tank SX-106 Pit Jmpr/Mod Cover Blks Field	3	16SEP98	18SEP98	80
23P62D	Tank SX-106 Pit Jmpr/Mod Cover Blks	1	21SEP98	21SEP98	80
23P62E	Tank SX-106 Pit Jmpr/Mod Cover Blks	2	22SEP98	23SEP98	80
23P64A	Tank SX-106 Planning	10	03AUG98	14AUG98	107
23P64B	Tank SX-106 Stage/Prep Equipment	1	08DEC98	08DEC98	29
23P64C	Tank SX-106 Perf Lance/Install Screen	4	09DEC98	14DEC98	29
23P64D	Tank SX-106 Restoration	1	15DEC98	15DEC98	29
23P72A	Tank SX-106 Write Xfr Procedure for SW	20	03AUG98	28AUG98	101
23P72B	Tank SX-106 Perform Mgt Assessment Pre-Start	2	21DEC98	22DEC98	24
23P72C	Tank SX-106 Perform Prereq's for SW Pumping	2	23DEC98	28DEC98	24
1.01.02.01.04.46.06.02 Pump Tank SX-106					
23P72D1	Pump Tank SX-106	586	01FEB99*	08SEP00	1
23P72D2	Tank SX-106 Perf Weekly Flush during SW	398	01FEB99	29AUG00	775
1.01.02.01.04.46.06.03 SWP System Maint & Operability Tank SX-106					
23P68A	Tank SX-106 (Annual) CM	398	01FEB99	29AUG00	775
23P68D	SX-106 Saltwell System PMs (Annual)	384	01FEB99	09AUG00	789
1.01.02.01.04.46.06.04 Isolation & Intrusion Prevention Tank SX-106					
23P78A1	Tank SX-106 Prepare WP for In-Tank Video	5	01SEP00	08SEP00	29
23P78A2	Tank SX-106 Perform In-Tank Video	1	11SEP00	11SEP00	66
23P78B1	Tank SX-106 Evaluate SW Pumping Data	60	19OCT00	17DEC00	1
23P78B2	Tank SX-106 Evaluate In-Tank Video Data	2	15DEC00	18DEC00	0
23P78B3	Tank SX-106 Prep Justif Letter/Declare	10	19DEC00	04JAN01	0
23P80A	Tank SX-106 Pit Isolation Design	30	28JUL00	08SEP00	79
23P80B	Tank SX-106 Isolation Planning	10	12SEP00	25SEP00	68
23P80C	Tank SX-106 Isolation Stage Equipment	10	05JAN01	18JAN01	0
23P80D	Tank SX-106 Isolation Work	10	19JAN01	01FEB01	0
23P80E	Tank SX-106 Isolation Complete Documentation	20	02FEB01	02MAR01	0
23PMS	Tank SX-106 Tank Stabilization/Isolation Compl	0		02MAR01	0
1.01.02.01.04.46.40 241-SX Tank Farm Annual Hydro					
1.01.02.01.04.46.40.01 241-SX Tank Farm Annual Hydro					
23M74A	Farm SX Annual Hydro - Planning (FY99)	15	01MAR99*	19MAR99	281
23M74B	Farm SX Annual Hydro - Stage Equipment	4	01MAR99	04MAR99	292
23M74C	Farm SX Annual Hydro - Set Up (FY99)	5	22MAR99	26MAR99	281
23M74D	Farm SX Annual Hydro - Perform Hydro Test	5	29MAR99	02APR99	281
23M74E	Farm SX Annual Hydro - Reconf Pits/Restore	5	05APR99	09APR99	281
23M74F	Farm SX Annual Hydro - Planning (FY00)	15	11APR00	01MAY00	281
23M74G	Farm SX Annual Hydro - Stage Equipment	4	11APR00	14APR00	292



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23M74H	Farm SX Annual Hydro - Set Up (FY00)	5	02MAY00	08MAY00	281
23M74J	Farm SX Annual Hydro - Perform Hydro Test	5	09MAY00	15MAY00	281
23M74K	Farm SX Annual Hydro - Reconf Pits/Restore	5	16MAY00	22MAY00	281
23M74M	Farm SX Annual Hydro - Planning (FY01)	15	23MAY01	13JUN01	281
23M74N	Farm SX Annual Hydro - Stage Equipment	4	23MAY01	29MAY01	292
23M74P	Farm SX Annual Hydro - Set Up (FY01)	5	14JUN01	20JUN01	281
23M74Q	Farm SX Annual Hydro - Perform Hydro Test	5	21JUN01	27JUN01	281
23M74R	Farm SX Annual Hydro - Reconf Pits/Restore	5	28JUN01	05JUL01	281
23M74S	Farm SX Annual Hydro - Planning (FY02)	15	09JUL02	29JUL02	281
23M74T	Farm SX Annual Hydro - Stage Equipment	4	09JUL02	12JUL02	292
23M74U	Farm SX Annual Hydro - Set Up (FY02)	5	30JUL02	05AUG02	281
23M74V	Farm SX Annual Hydro - Perform Hydro Test	5	06AUG02	12AUG02	281
23M74W	Farm SX Annual Hydro - Reconf Pits/Restore	5	13AUG02	19AUG02	281
1.01.02.01.04.47 SST 241-T Tank Farm Stabilization/Isolation					
1.01.02.01.04.47.01 Stabilize and Isolate Tank T-101					
1.01.02.01.04.47.01.04 Isolation & Intrusion Prevention Tank T-101					
23085K1	Tank T-101 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085K2	Tank T-101 Isolation Planning	10	15APR98	28APR98	1,322
23085K3	Tank T-101 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085K4	Tank T-101 Isolation Work	10	28MAY98	10JUN98	1,312
23085K5	Tank T-101 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.47.04 Stabilize and Isolate Tank T-104					
1.01.02.01.04.47.04.02 Pump Tank T-104					
23Q72D1	Pump Tank T-104	183	01MAY98*	30OCT98	1
23Q72D2	Tank T-104 Perf Weekly Flush during SW	127	01MAY98	30OCT98	1,233
1.01.02.01.04.47.04.03 SWP System Maint & Operability Tank T-104					
23Q68A	Tank T-104 (Annual) CM	127	01MAY98	30OCT98	1,233
23Q68D	Tank T-104 Saltwell System PMs (Annual)	127	01MAY98	30OCT98	1,233
1.01.02.01.04.47.04.04 Isolation & Intrusion Prevention Tank T-104					
23Q78A1	Tank T-104 Prepare WP for In-Tank Video	5	26OCT98	30OCT98	27
23Q78A2	Tank T-104 Perform In-Tank Video	1	02NOV98	02NOV98	63
23Q78B1	Tank T-104 Evaluate SW Pumping Data	60	10DEC98	07FEB99	1
23Q78B2	Tank T-104 Evaluate In-Tank Video Data	2	05FEB99	08FEB99	0
23Q78B3	Tank T-104 Prep Justif Letter/Declare Complete	10	09FEB99	23FEB99	0
23Q80A	Tank T-104 Pit Isolation Design	30	21SEP98	30OCT98	76
23Q80B	Tank T-104 Isolation Planning	10	03NOV98	16NOV98	65
23Q80C	Tank T-104 Isolation Stage Equipment	10	24FEB99	09MAR99	0
23Q80D	Tank T-104 Isolation Work	10	10MAR99	23MAR99	0
23Q80E	Tank T-104 Isolation Complete Documentation	20	24MAR99	20APR99	0
23QMS	Tank T-104 Tank Stabilization/Isolation Compl	0		20APR99	0



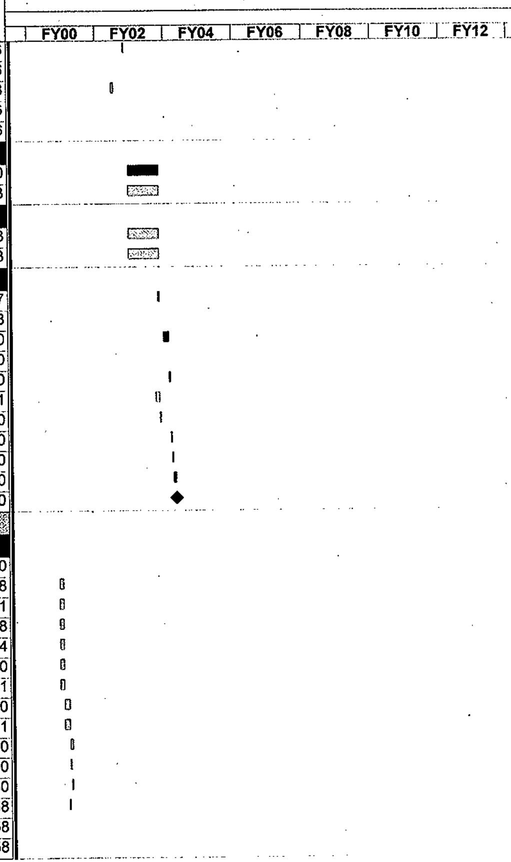
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.47.10 Stabilize and Isolate Tank T-110					
1.01.02.01.04.47.10.02 Pump Tank T-110					
23R72D1	Pump Tank T-110	153	01MAY98*	30SEP98	0
23R72D2	Tank T-110 Perf Weekly Flush during SW	105	01MAY98	30SEP98	1,255
1.01.02.01.04.47.10.03 SWP System Maint & Operability Tank T-110					
23R68A	Tank T-110 (Annual) CM	105	01MAY98	30SEP98	1,255
23R68D	Tank T-110 (Annual) PM Saltwell Systems	105	01MAY98	30SEP98	1,255
1.01.02.01.04.47.10.04 Isolation & Intrusion Prevention Tank T-110					
23R78A1	Tank T-110 Prepare WP for In-Tank Video	5	24SEP98	30SEP98	28
23R78A2	Tank T-110 Perform In-Tank Video	1	01OCT98	01OCT98	64
23R78B1	Tank T-110 Evaluate SW Pumping Data	60	10NOV98	08JAN99	0
23R78B2	Tank T-110 Evaluate In-Tank Video Data	2	07JAN99	08JAN99	0
23R78B3	Tank T-110 Prep Justif Letter/Declare Complete	10	11JAN99	22JAN99	0
23R80A	Tank T-110 Pit Isolation Design	30	19AUG98	30SEP98	77
23R80B	Tank T-110 Isolation Planning	10	02OCT98	15OCT98	66
23R80C	Tank T-110 Isolation Stage Equipment	10	25JAN99	05FEB99	0
23R80D	Tank T-110 Isolation Work	10	08FEB99	22FEB99	0
23R80E	Tank T-110 Isolation Complete Documentation	20	23FEB99	22MAR99	0
23RMS	Tank T-110 Tank Stabilization/Isolation Compl	0		22MAR99	0
1.01.02.01.04.47.11 Stabilize and Isolate Tank T-111					
1.01.02.01.04.47.11.04 Isolation & Intrusion Prevention Tank T-111					
23085M1	Tank T-111 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085M2	Tank T-111 Isolation Planning	10	15APR98	28APR98	1,322
23085M3	Tank T-111 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085M4	Tank T-111 Isolation Work	10	28MAY98	10JUN98	1,312
23085M5	Tank T-111 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.47.30 DCRT 244-TX for SST 241-T Tank Farm					
1.01.02.01.04.47.30.01 DCRT 244-TX for SST 241-T Tank Farm					
D3 47A	DCRT - Group 3	127*	01MAY98	30OCT98	0
1.01.02.01.04.48 SST 241-U Tank Farm Stabilization/Isolation					
1.01.02.01.04.48.02 Stabilize and Isolate Tank U-102					
1.01.02.01.04.48.02.01 Prepare Tank U-102 for Pumping					
23S05C	Tank U-102 Per Tank Walkdown	5	13MAR01*	19MAR01	16
23S10C	U-102 Instl Dsn - Upgr WFIE	30	13MAR01	23APR01	44
23S10D	Tank U-102 Prep/Appr ECN Cover Block Modif.	25	20MAR01	23APR01	77
23S10E	Tank U-102 Prep Dsn Media to Install FG	25	20MAR01	23APR01	64
23S10K	Tank U-102 Instl Dsn - SWP Screen	25	20MAR01	23APR01	80
23S10L	Tank U-102 Instl Dsn - Install Pump Jumper	30	20MAR01	30APR01	16
23S10M	Tank U-102 Instl Dsn - Instl Vlv Pit Jump	25	20MAR01	23APR01	17
23S15B	U-102 New Pump Jumper (1 ea)	40	01MAY01	26JUN01	16



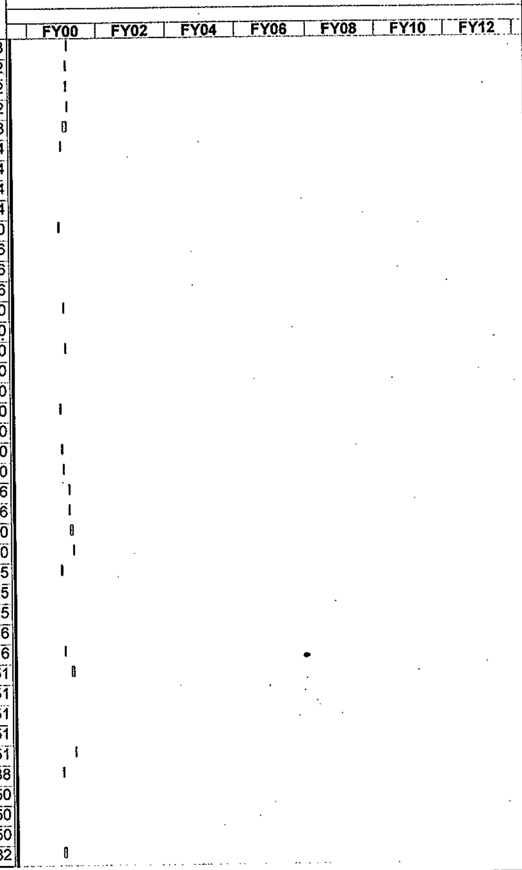
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23S15D	Tank U-102 Fab Pit Valve Jumpers (1)	40	24APR01	19JUN01	17
23S20A	Tank U-102 Plan/Modify Pump	15	27JUN01	18JUL01	16
23S20B	Tank U-102 Plan Run-In	10	27JUN01	11JUL01	16
23S20C	Tank U-102 Pump Run-In	3	12JUL01	16JUL01	16
23S30A	Tank U-102 FGM Planning	10	10APR01	23APR01	64
23S30B	Tank U-102 FGM Install	5	24APR01	30APR01	64
23S30C	Tank U-102 FGM Perform Calibration	2	04MAY01	07MAY01	64
23S30D	Tank U-102 FGM Perform OTP	3	01MAY01	03MAY01	64
23S45C	Tank U-102 Upgrade/WFIE Cabinet	30	24APR01	05JUN01	44
23S50A	Tank U-102 Saltwell Screen Planning	10	10APR01	23APR01	80
23S50B	Tank U-102 Saltwell Screen - Stage & Prep	1	24APR01	24APR01	80
23S50C	Tank U-102 Saltwell Screen - Install	2	25APR01	26APR01	80
23S50D	Tank U-102 Saltwell Screen - Restoration	1	27APR01	27APR01	80
23S54A1	Tank U-102 Review/Verify Profile Sht Complete	3	20MAR01	22MAR01	66
23S54A2	Tank U-102 Calc Inputs for Time 25% LFL	5	23MAR01	29MAR01	92
23S54A3	Tank U-102 Calc Inputs for Time 25% LFL	2	30MAR01	02APR01	92
23S54A4	Tank U-102 Determn DCRT Time to 25% LFL	2	30MAR01	02APR01	92
23S54A5	Tank U-102 Compl Compatability Compliance	6	01MAY01	08MAY01	66
23S54A6	Tank U-102 Write/Review Issue White Paper	3	09MAY01	11MAY01	66
23S54A7	Tank U-102 Perform Assessment/Rvw/Approve	5	14MAY01	18MAY01	66
23S54A8	Tank U-102 Management review & approval	5	21MAY01	25MAY01	66
23S54B1	Tank U-102 Review ANOVA Results	2	20MAR01	21MAR01	66
23S54B2	Tank U-102 Gather Process Data (EVAP/FLOW	5	22MAR01	28MAR01	66
23S54B3	Tank U-102 Perform Calculations	5	29MAR01	04APR01	66
23S54B4	Tank U-102 Prepare Appendix to SD	3	05APR01	09APR01	66
23S54B5	Tank U-102 Write Supporting Document	15	10APR01	30APR01	66
23S56A	Tank U-102 Plan OTP	10	13MAR01	26MAR01	82
23S56B	Tank U-102 Engineering Plan OTP Saltwell Sys	10	13MAR01	26MAR01	82
23S56D	Tank U-102 Perform OTP	12	28JUN01	16JUL01	16
23S56E	Tank U-102 OTP Closeout	10	17JUL01	30JUL01	16
23S60A	Tank U-102 Hydro - Planning (1 Xfr Line) (3)	10	13MAR01	26MAR01	95
23S60B	Tank U-102 Hydro - Stage Equipment (3)	1	27MAR01	27MAR01	95
23S60D	Tank U-102 Hydro - Perform Hydro Test (3)	3	28MAR01	30MAR01	95
23S60E	Tank U-102 Hydro - Reconfig Pits/Restore (3)	5	02APR01	06APR01	95
23S62A	Tank U-102 Pit Jmpr/Mod Cover Blks Planning	20	20JUN01	18JUL01	17
23S62B	Tank U-102 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	19JUL01	19JUL01	17
23S62C	Tank U-102 Pit Jmpr/Mod Cover Blks Field Work	3	20JUL01	24JUL01	17
23S62D	Tank U-102 Pit Jmpr/Mod Cover Blks	1	25JUL01	25JUL01	17
23S62E	Tank U-102 Pit Jmpr/Mod Cover Blks	2	26JUL01	27JUL01	17
23S64A	Tank U-102 Planning	10	13MAR01	26MAR01	104
23S64B	Tank U-102 Stage/Prep Equipment	1	31JUL01	31JUL01	16

FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23S64C	Tank U-102 Perf Lance/Install Screen	4	01AUG01	06AUG01	16
23S64D	Tank U-102 Restoration	1	07AUG01	07AUG01	16
23S72A	Tank U-102 Write Xfr Procedure for SW Pumping	20	13MAR01	09APR01	98
23S72B	Tank U-102 Perform Mgt Assessment Pre-Start	2	06AUG01	07AUG01	16
23S72C	Tank U-102 Perform Prereq's for SW Pumping	2	08AUG01	09AUG01	16
1.01.02.01.04.48.02.02 Pump Tank U-102					
23S72D1	Pump Tank U-102	334	01SEP01*	31JUL02	0
23S72D2	Tank U-102 Perf Weekly Flush during SW	228	04SEP01	01AUG02	293
1.01.02.01.04.48.02.03 SWP System Maint & Operability Tank U-102					
23S68A	Tank U-102 (Annual) CM	228	04SEP01	01AUG02	293
23S68B	Tank U-102 (Annual) PM	228	04SEP01	01AUG02	293
1.01.02.01.04.48.02.04 Isolation & Intrusion Prevention Tank U-102					
23S78A1	Tank U-102 Prepare WP for In-Tank Video	5	25JUL02	31JUL02	27
23S78A2	Tank U-102 Perform In-Tank Video	1	01AUG02	01AUG02	68
23S78B1	Tank U-102 Evaluate SW-Pumping Data	60	10SEP02	08NOV02	0
23S78B2	Tank U-102 Evaluate In-Tank Video Data	2	07NOV02	08NOV02	0
23S78B3	Tank U-102 Prep Justif Letter/Declare Complete	10	11NOV02	22NOV02	0
23S80A	Tank U-102 Pit Isolation Design	30	18JUN02	31JUL02	81
23S80B	Tank U-102 Isolation Planning	10	02AUG02	15AUG02	70
23S80C	Tank U-102 Isolation Stage Equipment	10	25NOV02	10DEC02	0
23S80D	Tank U-102 Isolation Work	10	11DEC02	26DEC02	0
23S80E	Tank U-102 Isolation Complete Documentation	20	27DEC02	24JAN03	0
23SMS	Tank U-102 Tank Stabilization/Isolation Compl	0		24JAN03	0
1.01.02.01.04.48.03 Stabilize and Isolate Tank U-103					
1.01.02.01.04.48.03.01 Prepare Tank U-103 for Pumping					
23T05C	Tank U-103 Per Tank Walkdown	5	09AUG99*	13AUG99	20
23T10C	U-103 Instl Dsn - Upgr WFIE	30	09AUG99	20SEP99	378
23T10D	Tank U-103 Prep/Appr ECN Cover Block Modif.	25	16AUG99	20SEP99	411
23T10E	Tank U-103 Prep Dsn Media to Install FG	25	16AUG99	20SEP99	398
23T10K	Tank U-103 Instl Dsn - SWP Screen	25	16AUG99	20SEP99	414
23T10L	Tank U-103 Instl Dsn - Install Pump Jumper	30	16AUG99	27SEP99	350
23T10M	Tank U-103 Instl Dsn - Instl Vlv Pit Jump (2)	25	16AUG99	20SEP99	351
23T15B	U-103 New Pump Jumper (1 ea)	40	28SEP99	22NOV99	350
23T15D	Tank U-103 Fab Pit Valve Jumpers (2)	40	21SEP99	15NOV99	351
23T20A	Tank U-103 Plan/Modify Pump	15	23NOV99	15DEC99	350
23T20B	Tank U-103 Plan Run-In	10	23NOV99	08DEC99	350
23T20C	Tank U-103 Pump Run-In	3	09DEC99	13DEC99	350
23T30A	Tank U-103 FGM Planning	10	02NOV99	15NOV99	358
23T30B	Tank U-103 FGM Install	5	16NOV99	22NOV99	358
23T30C	Tank U-103 FGM Perform Calibration	2	30NOV99	01DEC99	358



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23T30D	Tank U-103 FGM Perform OTP	3	23NOV99	29NOV99	358
23T40A	Tank U-103 Exhauster Planning	10	02NOV99	15NOV99	372
23T40B	Tank U-103 Stage Materials	5	09NOV99	15NOV99	372
23T40G	Tank U-103 (OTP) Exhauster	6	24NOV99	03DEC99	372
23T45C	Tank U-103 Upgrade/WFIE Cabinet	30	05OCT99	15NOV99	368
23T50A	Tank U-103 Saltwell Screen Planning	10	07SEP99	20SEP99	414
23T50B	Tank U-103 Saltwell Screen - Stage & Prep	1	21SEP99	21SEP99	414
23T50C	Tank U-103 Saltwell Screen - Install	2	22SEP99	23SEP99	414
23T50D	Tank U-103 Saltwell Screen - Restoration	1	24SEP99	24SEP99	414
23T54A1	Tank U-103 Review/Verify Profile Sht Complete	3	16AUG99	18AUG99	400
23T54A2	Tank U-103 Calc Inputs for Time 25% LFL	5	19AUG99	25AUG99	426
23T54A3	Tank U-103 Calc Inputs for Time 25% LFL	2	26AUG99	27AUG99	426
23T54A4	Tank U-103 Determn DCRT Time to 25% LFL	2	26AUG99	27AUG99	426
23T54A5	Tank U-103 Compl Compatability Compliance	6	28SEP99	05OCT99	400
23T54A6	Tank U-103 Write/Review Issue White Paper	3	06OCT99	08OCT99	400
23T54A7	Tank U-103 Perform Assessment/Rvw/Approve	5	11OCT99	15OCT99	400
23T54A8	Tank U-103 Management review & approval	5	18OCT99	22OCT99	400
23T54B1	Tank U-103 Review ANOVA Results	2	16AUG99	17AUG99	400
23T54B2	Tank U-103 Gather Process Data (EVAP/FLOW	5	18AUG99	24AUG99	400
23T54B3	Tank U-103 Perform Calculations	5	25AUG99	31AUG99	400
23T54B4	Tank U-103 Prepare Appendix to SD	3	01SEP99	03SEP99	400
23T54B5	Tank U-103 Write Supporting Document	15	07SEP99	27SEP99	400
23T56A	Tank U-103 Plan OTP	10	02NOV99	15NOV99	356
23T56B	Tank U-103 Engineering Plan OTP Saltwell Sys	10	02NOV99	15NOV99	356
23T56D	Tank U-103 Perform OTP	12	24NOV99	13DEC99	350
23T56E	Tank U-103 OTP Closeout	10	14DEC99	29DEC99	350
23T60A	Tank U-103 Hydro - Planning (1 Xfr Line) (3)	10	09AUG99	20AUG99	425
23T60B	Tank U-103 Hydro - Stage Equipment (3)	1	23AUG99	23AUG99	425
23T60C	Tank U-103 Hydro - Set Up (3)	4	24AUG99	27AUG99	425
23T60D	Tank U-103 Hydro - Perform Hydro Test (3)	3	13SEP99	15SEP99	416
23T60E	Tank U-103 Hydro - Reconfig Pits/Restore (3)	5	16SEP99	22SEP99	416
23T62A	Tank U-103 Pit Jmpr/Mod Cover Blks Planning	20	16NOV99	15DEC99	351
23T62B	Tank U-103 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	16DEC99	16DEC99	351
23T62C	Tank U-103 Pit Jmpr/Mod Cover Blks Field Work	3	17DEC99	21DEC99	351
23T62D	Tank U-103 Pit Jmpr/Mod Cover Blks (2)	1	22DEC99	22DEC99	351
23T62E	Tank U-103 Pit Jmpr/Mod Cover Blks Restore (2)	2	23DEC99	28DEC99	351
23T64A	Tank U-103 Planning	10	09AUG99	20AUG99	438
23T64B	Tank U-103 Stage/Prep Equipment	1	30DEC99	30DEC99	350
23T64C	Tank U-103 Perf Lance/Install Screen	4	31DEC99	06JAN00	350
23T64D	Tank U-103 Restoration	1	07JAN00	07JAN00	350
23T72A	Tank U-103 Write Xfr Procedure for SW Pumping	20	09AUG99	03SEP99	432



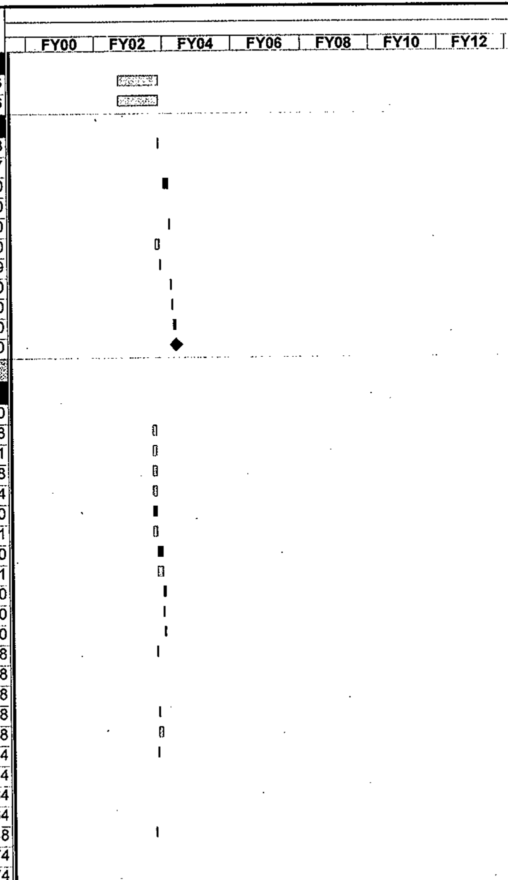
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23T72B	Tank U-103 Perform Mgt Assessment Pre-Start	2	06JAN00	07JAN00	350
23T72C	Tank U-103 Perform Prereq's for SW Pumping	2	10JAN00	11JAN00	350
1.01.02.01.04.48.03.02 Pump Tank U-103					
23T72D1	Pump Tank U-103	487	01JUN01*	30SEP02	0
23T72D2	Tank U-103 Perf Weekly Flush during SW	331	01JUN01	25SEP02	255
1.01.02.01.04.48.03.03 SWP System Maint & Operability Tank U-103					
23T68A	Tank U-103 (Annual) CM	331	01JUN01	25SEP02	255
23T68B	Tank U-103 (Annual) PM	331	01JUN01	25SEP02	255
1.01.02.01.04.48.03.04 Isolation & Intrusion Prevention Tank U-103					
23T78A1	Tank U-103 Prepare WP for In-Tank Video	5	24SEP02	30SEP02	29
23T78A2	Tank U-103 Perform In-Tank Video	1	01OCT02	01OCT02	64
23T78B1	Tank U-103 Evaluate SW Pumping Data	60	10NOV02	08JAN03	0
23T78B2	Tank U-103 Evaluate In-Tank Video Data	2	07JAN03	08JAN03	0
23T78B3	Tank U-103 Prep Justif Letter/Declare Complete	10	09JAN03	22JAN03	0
23T80A	Tank U-103 Pit Isolation Design	30	19AUG02	30SEP02	77
23T80B	Tank U-103 Isolation Planning	10	02OCT02	15OCT02	66
23T80C	Tank U-103 Isolation Stage Equipment	10	23JAN03	05FEB03	0
23T80D	Tank U-103 Isolation Work	10	06FEB03	20FEB03	0
23T80E	Tank U-103 Isolation Complete Documentation	20	21FEB03	20MAR03	0
23TMS	Tank U-103 Tank Stabilization/Isolation Compl	0		20MAR03	0
1.01.02.01.04.48.05 Stabilize and Isolate Tank U-105					
1.01.02.01.04.48.05.01 Prepare Tank U-105 for Pumping					
23U05C	Tank U-105 Per Tank Walkdown	5	15JAN01*	19JAN01	0
23U10C	U-105 Instl Dsn - Upgr WFIE	30	15JAN01	26FEB01	28
23U10D	Tank U-105 Prep/Appr ECN Cover Block Modif.	25	22JAN01	26FEB01	61
23U10E	Tank U-105 Prep Dsn Media to Install FG	25	22JAN01	26FEB01	48
23U10K	Tank U-105 Instl Dsn - SWP Screen	25	22JAN01	26FEB01	64
23U10L	Tank U-105 Instl Dsn - Install Pump Jumper	30	22JAN01	05MAR01	0
23U10M	Tank U-105 Instl Dsn - Instl Vlv Pit Jump (6)	25	22JAN01	26FEB01	1
23U15B	U-105 New Pump Jumper (1 ea)	40	06MAR01	30APR01	0
23U15D	Tank U-105 Fab Pit Valve Jumpers (1)	40	27FEB01	23APR01	1
23U20A	Tank U-105 Plan/Modify Pump	15	01MAY01	21MAY01	0
23U20B	Tank U-105 Plan Run-In	10	01MAY01	14MAY01	0
23U20C	Tank U-105 Pump Run-In	3	15MAY01	17MAY01	0
23U30A	Tank U-105 FGM Planning	10	12FEB01	26FEB01	48
23U30B	Tank U-105 FGM Install	5	27FEB01	05MAR01	48
23U30C	Tank U-105 FGM Perform Calibration	2	09MAR01	12MAR01	48
23U30D	Tank U-105 FGM Perform OTP	3	06MAR01	08MAR01	48
23U45C	Tank U-105 Upgrade/WFIE Cabinet	30	27FEB01	09APR01	28
23U50A	Tank U-105 Saltwell Screen Planning	10	12FEB01	26FEB01	64

FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23U50B	Tank U-105 Saltwell Screen - Stage & Prep	1	27FEB01	27FEB01	64
23U50C	Tank U-105 Saltwell Screen - Install	2	28FEB01	01MAR01	64
23U50D	Tank U-105 Saltwell Screen - Restoration	1	02MAR01	02MAR01	64
23U54A1	Tank U-105 Review/Verify Profile Sht Complete	3	22JAN01	24JAN01	48
23U54A2	Tank U-105 Calc Inputs for Time 25% LFL	5	25JAN01	31JAN01	74
23U54A3	Tank U-105 Calc Inputs for Time 25% LFL	2	01FEB01	02FEB01	74
23U54A4	Tank U-105 Determn DCRT Time to 25% LFL	2	01FEB01	02FEB01	74
23U54A5	Tank U-105 Compl Compatability Compliance	6	06MAR01	13MAR01	48
23U54A6	Tank U-105 Write/Review Issue White Paper	3	14MAR01	16MAR01	48
23U54A7	Tank U-105 Perform Assessment/Rvw/Approve	5	19MAR01	23MAR01	48
23U54A8	Tank U-105 Management review & approval	5	26MAR01	30MAR01	48
23U54B1	Tank U-105 Review ANOVA Results	2	22JAN01	23JAN01	48
23U54B2	Tank U-105 Gather Process Data (EVAP/FLOW	5	24JAN01	30JAN01	48
23U54B3	Tank U-105 Perform Calculations	5	31JAN01	06FEB01	48
23U54B4	Tank U-105 Prepare Appendix to SD	3	07FEB01	09FEB01	48
23U54B5	Tank U-105 Write Supporting Document	15	12FEB01	05MAR01	48
23U56A	Tank U-105 Plan OTP	10	15JAN01	26JAN01	66
23U56B	Tank U-105 Engineering Plan OTP Saltwell Sys	10	15JAN01	26JAN01	66
23U56D	Tank U-105 Perform OTP	12	02MAY01	17MAY01	0
23U56E	Tank U-105 OTP Closeout	10	18MAY01	01JUN01	0
23U60A	Tank U-105 Hydro - Planning (1 Xfr Line) (4)	10	15JAN01	26JAN01	75
23U60B	Tank U-105 Hydro - Stage Equipment (4)	1	29JAN01	29JAN01	75
23U60C	Tank U-105 Hydro - Set Up (4)	4	30JAN01	02FEB01	75
23U60D	Tank U-105 Hydro - Perform Hydro Test (4)	3	05FEB01	07FEB01	75
23U60E	Tank U-105 Hydro - Reconfig Pits/Restore (4)	5	08FEB01	14FEB01	75
23U62A	Tank U-105 Pit Jmpr/Mod Cover Blks Planning	20	24APR01	21MAY01	1
23U62B	Tank U-105 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	22MAY01	22MAY01	1
23U62C	Tank U-105 Pit Jmpr/Mod Cover Blks Field Work	3	23MAY01	25MAY01	1
23U62D	Tank U-105 Pit Jmpr/Mod Cover Blks	1	29MAY01	29MAY01	1
23U62E	Tank U-105 Pit Jmpr/Mod Cover Blks	2	30MAY01	31MAY01	1
23U64A	Tank U-105 Planning	10	15JAN01	26JAN01	88
23U64B	Tank U-105 Stage/Prep Equipment	1	04JUN01	04JUN01	0
23U64C	Tank U-105 Perf Lance/Install Screen	4	05JUN01	08JUN01	0
23U64D	Tank U-105 Restoration	1	11JUN01	11JUN01	0
23U72A	Tank U-105 Write Xfr Procedure for SW Pumping	20	15JAN01	09FEB01	80
23U72B	Tank U-105 Perform Mgt Assessment Pre-Start	2	29MAR01	30MAR01	48
23U72C	Tank U-105 Perform Prereq's for SW Pumping	2	02APR01	03APR01	48
1.01.02.01.04.48.05.02 Pump Tank U-105					
23U72D1	Pump Tank U-105	426	12JUN01*	11AUG02	0
23U72D2	Tank U-105 Perf Weekly Flush during SW	293	12JUN01	12AUG02	286

FY00 FY02 FY04 FY06 FY08 FY10 FY12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.48.05.03 SWP System Maint & Operability Tank U-105					
23U68A	Tank U-105 (Annual) CM	293	12JUN01	12AUG02	286
23U68D	Tank U-105 Saltwell System PMs (Annual)	293	12JUN01	12AUG02	286
1.01.02.01.04.48.05.04 Isolation & Intrusion Prevention Tank U-105					
23U78A1	Tank U-105 Prepare WP for In-Tank Video	5	06AUG02	12AUG02	28
23U78A2	Tank U-105 Perform In-Tank Video	1	13AUG02	13AUG02	67
23U78B1	Tank U-105 Evaluate SW Pumping Data	60	21SEP02	19NOV02	0
23U78B2	Tank U-105 Evaluate In-Tank Video Data	2	18NOV02	19NOV02	0
23U78B3	Tank U-105 Prep Justif Letter/Declare Complete	10	20NOV02	05DEC02	0
23U80A	Tank U-105 Pit Isolation Design	30	28JUN02	12AUG02	80
23U80B	Tank U-105 Isolation Planning	10	14AUG02	27AUG02	69
23U80C	Tank U-105 Isolation Stage Equipment	10	06DEC02	19DEC02	0
23U80D	Tank U-105 Isolation Work	10	20DEC02	07JAN03	0
23U80E	Tank U-105 Isolation Complete Documentation	20	08JAN03	04FEB03	0
23UMS	Tank U-105 Tank Stabilization/Isolation Compl	0		04FEB03	0
1.01.02.01.04.48.06 Stabilize and Isolate Tank U-106					
1.01.02.01.04.48.06.01 Prepare Tank U-106 for Pumping					
23V05C	Tank U-106 Per Tank Walkdown	5	16MAY02*	22MAY02	0
23V10C	Tank U-106 Instl Dsn - Upgr WFIE	30	16MAY02	27JUN02	28
23V10D	Tank U-106 Prep/Appr ECN Cover Block Modif.	25	23MAY02	27JUN02	61
23V10E	Tank U-106 Prep Dsn Media to Instl FG Monitor	25	23MAY02	27JUN02	48
23V10K	Tank U-106 Instl Dsn - SWP Screen	25	23MAY02	27JUN02	64
23V10L	Tank U-106 Instl Dsn - Install Pump Jumper	30	23MAY02	08JUL02	0
23V10M	Tank U-106 Instl Dsn - Instl Vlv Pit Jump (6)	25	23MAY02	27JUN02	1
23V15B	Tank U-106 New Pump Jumper (1 ea)	40	09JUL02	03SEP02	0
23V15D	Tank U-106 Fab Pit Valve Jumpers (6)	40	28JUN02	26AUG02	1
23V20A	Tank U-106 Plan/Modify Pump	15	04SEP02	24SEP02	0
23V20B	Tank U-106 Plan Run-In	10	04SEP02	17SEP02	0
23V20C	Tank U-106 Pump Run-In	3	18SEP02	20SEP02	0
23V30A	Tank U-106 FGM Planning (2)	10	14JUN02	27JUN02	48
23V30B	Tank U-106 FGM Install (2)	5	28JUN02	08JUL02	48
23V30C	Tank U-106 FGM Perform Calibration (2)	2	12JUL02	15JUL02	48
23V30D	Tank U-106 FGM Perform OTP (2)	3	09JUL02	11JUL02	48
23V45C	Tank U-106 Upgrade/WFIE Cabinet	30	28JUN02	12AUG02	28
23V50A	Tank U-106 Saltwell Screen Planning	10	14JUN02	27JUN02	64
23V50B	Tank U-106 Saltwell Screen - Stage & Prep	1	28JUN02	28JUN02	64
23V50C	Tank U-106 Saltwell Screen - Install	2	01JUL02	02JUL02	64
23V50D	Tank U-106 Saltwell Screen - Restoration	1	03JUL02	03JUL02	64
23V54A1	Tank U-106 Review/Verify Profile Sht Complete	3	23MAY02	28MAY02	48
23V54A2	Tank U-106 Calc Inputs for Time 25% LFL	5	29MAY02	04JUN02	74
23V54A3	Tank U-106 Calc Inputs for Time 25% LFL	2	05JUN02	06JUN02	74



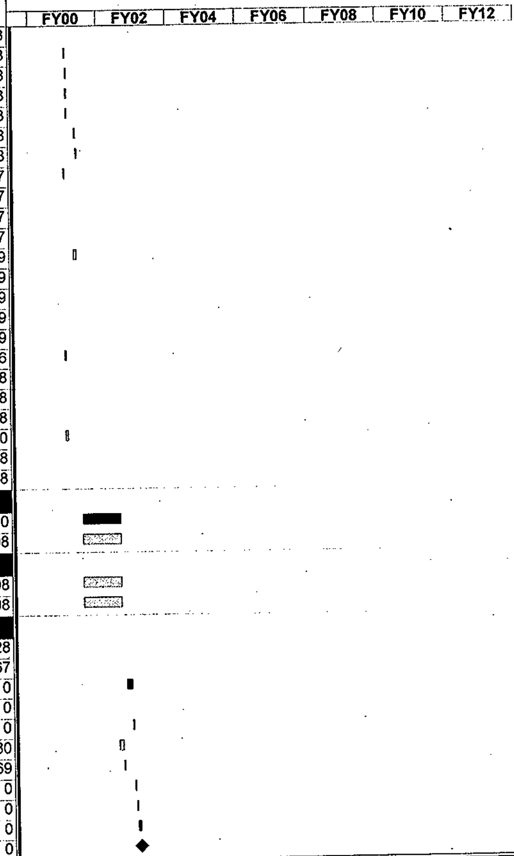
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23V54A4	Tank U-106 Determn DCRT Time to 25% LFL	2	05JUN02	06JUN02	74
23V54A5	Tank U-106 Compl Compatability Compliance	6	09JUL02	16JUL02	48
23V54A6	Tank U-106 Write/Review Issue White Paper	3	17JUL02	19JUL02	48
23V54A7	Tank U-106 Perform Assessment/Rvw/Approve	5	22JUL02	26JUL02	48
23V54A8	Tank U-106 Management review & approval	5	29JUL02	02AUG02	48
23V54B1	Tank U-106 Review ANOVA Results	2	23MAY02	24MAY02	48
23V54B2	Tank U-106 Gather Process Data (EVAP/FLOW	5	28MAY02	03JUN02	48
23V54B3	Tank U-106 Perform Calculations	5	04JUN02	10JUN02	48
23V54B4	Tank U-106 Prepare Appendix to SD	3	11JUN02	13JUN02	48
23V54B5	Tank U-106 Write Supporting Document	15	14JUN02	08JUL02	48
23V56A	Tank U-106 Plan OTP	10	16MAY02	30MAY02	66
23V56B	Tank U-106 Engineering Plan OTP Saltwell Sys	10	16MAY02	30MAY02	66
23V56D	Tank U-106 Perform OTP	12	05SEP02	20SEP02	0
23V56E	Tank U-106 OTP Closeout	10	23SEP02	04OCT02	0
23V60A	Tank U-106 Hydro - Planning (1 Xfr Line) (3)	10	16MAY02	30MAY02	75
23V60B	Tank U-106 Hydro - Stage Equipment (3)	1	31MAY02	31MAY02	75
23V60C	Tank U-106 Hydro - Set Up (3)	4	03JUN02	06JUN02	75
23V60D	Tank U-106 Hydro - Perform Hydro Test (3)	3	07JUN02	11JUN02	75
23V60E	Tank U-106 Hydro - Reconfig Pits/Restore (3)	5	12JUN02	18JUN02	75
23V62A	Tank U-106 Pit Jmpr/Mod Cover Blks Planning	20	27AUG02	24SEP02	1
23V62B	Tank U-106 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	25SEP02	25SEP02	1
23V62C	Tank U-106 Pit Jmpr/Mod Cover Blks Field Work	3	26SEP02	30SEP02	1
23V62D	Tank U-106 Pit Jmpr/Mod Cover Blks	1	01OCT02	01OCT02	1
23V62E	Tank U-106 Pit Jmpr/Mod Cover Blks	2	02OCT02	03OCT02	1
23V64A	Tank U-106 Planning	10	16MAY02	30MAY02	88
23V64B	Tank U-106 Stage/Prep Equipment	1	07OCT02	07OCT02	0
23V64C	Tank U-106 Perf Lance/Install Screen	4	08OCT02	11OCT02	0
23V64D	Tank U-106 Restoration	1	14OCT02	14OCT02	0
23V72A	Tank U-106 Write Xfr Procedure for SW Pumping	20	16MAY02	13JUN02	80
23V72B	Tank U-106 Perform Mgt Assessment Pre-Start	2	01AUG02	02AUG02	48
23V72C	Tank U-106 Perform Prereq's for SW Pumping	2	05AUG02	06AUG02	48
1.01.02.01.04.48.06.02 Pump Tank U-106					
23V72D1	Pump Tank U-106	153	15OCT02*	16MAR03	0
23V72D2	Tank U-106 Perf Weekly Flush during SW	104	15OCT02	17MAR03	138
1.01.02.01.04.48.06.03 SWP System Maint & Operability Tank U-106					
23V68A	Tank U-106 (Annual) CM	104	15OCT02	17MAR03	138
23V68D	Tank U-106 Saltwell System PMs (Annual)	104	15OCT02	17MAR03	138
1.01.02.01.04.48.06.04 Isolation & Intrusion Prevention Tank U-106					
23V78A1	Tank U-106 Prepare WP for In-Tank Video	5	11MAR03	17MAR03	29
23V78A2	Tank U-106 Perform In-Tank Video	1	18MAR03	18MAR03	67
23V78B1	Tank U-106 Evaluate SW Pumping Data	60	26APR03	24JUN03	0

FY00 FY02 FY04 FY06 FY08 FY10 FY12

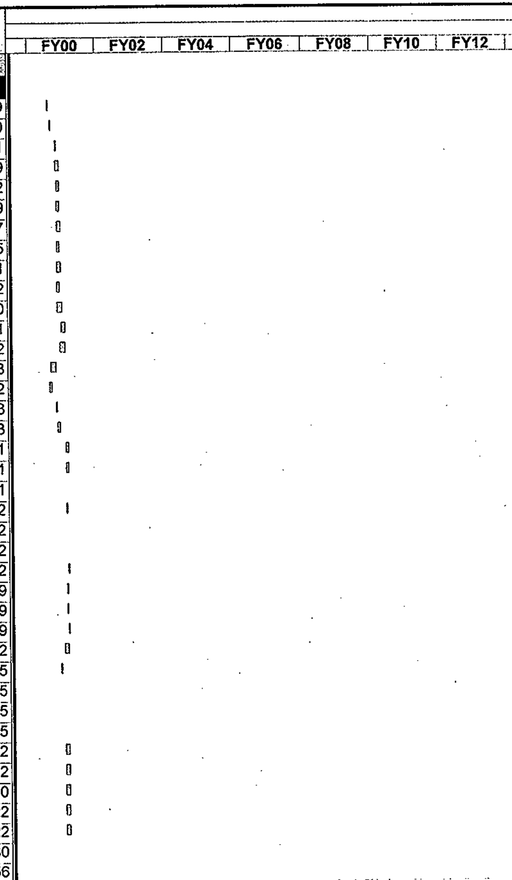
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23V78B2	Tank U-106 Evaluate In-Tank Video Data	2	23JUN03	24JUN03	0
23V78B3	Tank U-106 Prep Justif Letter/Declare Complete	10	25JUN03	10JUL03	0
23V80A	Tank U-106 Pit Isolation Design	30	03FEB03	17MAR03	80
23V80B	Tank U-106 Isolation Planning	10	19MAR03	01APR03	69
23V80C	Tank U-106 Isolation Stage Equipment	10	11JUL03	24JUL03	0
23V80D	Tank U-106 Isolation Work	10	25JUL03	07AUG03	0
23V80E	Tank U-106 Isolation Complete Documentation	20	08AUG03	05SEP03	0
23VMS	Tank U-106 Tank Stabilization/Isolation Compl	0		05SEP03	0
1.01.02.01.04.48.07 Stabilize and Isolate Tank U-107					
1.01.02.01.04.48.07.01 Prepare Tank U-107 for Pumping					
23W05C	Tank U-107 Per Tank Walkdown	5	04OCT99*	08OCT99	18
23W10C	Tank U-107 Instl Dsn - Upgr WFIE	30	04OCT99	12NOV99	46
23W10D	Tank U-107 Prep/Appr ECN Cover Block Modif.	25	11OCT99	12NOV99	79
23W10E	Tank U-107 Prep Dsn Media to Install FG	25	11OCT99	12NOV99	66
23W10K	Tank U-107 Instl Dsn - SWP Screen	25	11OCT99	12NOV99	82
23W10L	Tank U-107 Instl Dsn - Install Pump Jumper	30	11OCT99	19NOV99	18
23W10M	Tank U-107 Instl Dsn - Instl Vlv Pit Jump	25	11OCT99	12NOV99	19
23W15B	Tank U-107 New Pump Jumper (1 ea)	40	22NOV99	21JAN00	18
23W15D	Tank U-107 Fab Pit Valve Jumpers (6)	40	15NOV99	14JAN00	19
23W20A	Tank U-107 Plan/Modify Pump	15	24JAN00	11FEB00	18
23W20B	Tank U-107 Plan Run-In	10	24JAN00	04FEB00	18
23W20C	Tank U-107 Pump Run-In	3	07FEB00	09FEB00	18
23W30A	Tank U-107 FGM Planning	10	02NOV99	15NOV99	65
23W30B	Tank U-107 FGM Install	5	16NOV99	22NOV99	65
23W30C	Tank U-107 FGM Perform Calibration	2	30NOV99	01DEC99	65
23W30D	Tank U-107 FGM Perform OTP	3	23NOV99	29NOV99	65
23W45C	Tank U-107 Upgrade/WFIE Cabinet	30	15NOV99	30DEC99	46
23W50A	Tank U-107 Saltwell Screen Planning	10	01NOV99	12NOV99	82
23W50B	Tank U-107 Saltwell Screen - Stage & Prep	1	15NOV99	15NOV99	82
23W50C	Tank U-107 Saltwell Screen - Install	2	16NOV99	17NOV99	82
23W50D	Tank U-107 Saltwell Screen - Restoration	1	18NOV99	18NOV99	82
23W54A1	Tank U-107 Review/Verify Profile Sht Complete	3	11OCT99	13OCT99	68
23W54A2	Tank U-107 Calc Inputs for Time 25% LFL	5	14OCT99	20OCT99	94
23W54A3	Tank U-107 Calc Inputs for Time 25% LFL	2	21OCT99	22OCT99	94
23W54A4	Tank U-107 Determn DCRT Time to 25% LFL	2	21OCT99	22OCT99	94
23W54A5	Tank U-107 Compl Compatability Compliance	6	22NOV99	01DEC99	68
23W54A6	Tank U-107 Write/Review Issue White Paper	3	02DEC99	06DEC99	68
23W54A7	Tank U-107 Perform Assessment/Rvw/Approve	5	07DEC99	13DEC99	68
23W54A8	Tank U-107 Management review & approval	5	14DEC99	20DEC99	68
23W54B1	Tank U-107 Review ANOVA Results	2	11OCT99	12OCT99	68
23W54B2	Tank U-107 Gather Process Data (EVAP/FLOW	5	13OCT99	19OCT99	68

FY00 FY02 FY04 FY06 FY08 FY10 FY12

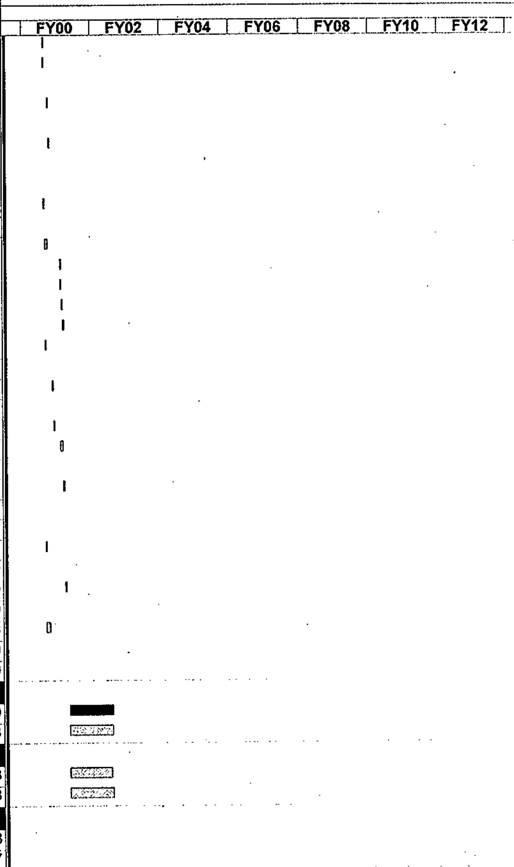
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23W54B3	Tank U-107 Perform Calculations	5	20OCT99	26OCT99	68
23W54B4	Tank U-107 Prepare Appendix to SD	3	27OCT99	29OCT99	68
23W54B5	Tank U-107 Write Supporting Document	15	01NOV99	19NOV99	68
23W56A	Tank U-107 Plan OTP	10	02NOV99	15NOV99	63
23W56B	Tank U-107 Engineering Plan OTP Saltwell Sys	10	02NOV99	15NOV99	63
23W56D	Tank U-107 Perform OTP	12	25JAN00	09FEB00	18
23W56E	Tank U-107 OTP Closeout	10	10FEB00	24FEB00	18
23W60A	Tank U-107 Hydro - Planning (1 Xfr Line) (2)	10	04OCT99	15OCT99	97
23W60B	Tank U-107 Hydro - Stage Equipment (2)	1	18OCT99	18OCT99	97
23W60D	Tank U-107 Hydro - Perform Hydro Test (2)	3	19OCT99	21OCT99	97
23W60E	Tank U-107 Hydro - Reconfig Pits/Restore (2)	5	22OCT99	28OCT99	97
23W62A	Tank U-107 Pit Jmpr/Mod Cover Blks Planning	20	17JAN00	11FEB00	19
23W62B	Tank U-107 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	14FEB00	14FEB00	19
23W62C	Tank U-107 Pit Jmpr/Mod Cover Blks Field Work	3	15FEB00	17FEB00	19
23W62D	Tank U-107 Pit Jmpr/Mod Cover Blks	1	18FEB00	18FEB00	19
23W62E	Tank U-107 Pit Jmpr/Mod Cover Blks	2	22FEB00	23FEB00	19
23W64A	Tank U-107 Planning	10	04OCT99	15OCT99	106
23W64B	Tank U-107 Stage/Prep Equipment	1	25FEB00	25FEB00	18
23W64C	Tank U-107 Perf Lance/Install Screen	4	28FEB00	02MAR00	18
23W64D	Tank U-107 Restoration	1	03MAR00	03MAR00	18
23W72A	Tank U-107 Write Xfr Procedure for SW Pumping	20	04OCT99	29OCT99	100
23W72B	Tank U-107 Perform Mgt Assessment Pre-Start	2	02MAR00	03MAR00	18
23W72C	Tank U-107 Perform Prereq's for SW Pumping	2	06MAR00	07MAR00	18
1.01.02.01.04.48.07.02 Pump Tank U-107					
23W72D1	Pump Tank U-107	395	01APR00*	30APR01	0
23W72D2	Tank U-107 Perf Weekly Flush during SW	271	03APR00	30APR01	608
1.01.02.01.04.48.07.03 SWP System Maint & Operability Tank U-107					
23W68A	Tank U-107 (Annual) CM	271	03APR00	30APR01	608
23W68D	Tank U-107 Saltwell System PMs (Annual)	271	03APR00	30APR01	608
1.01.02.01.04.48.07.04 Isolation & Intrusion Prevention Tank U-107					
23W78A1	Tank U-107 Prepare WP for In-Tank Video	5	24APR01	30APR01	28
23W78A2	Tank U-107 Perform In-Tank Video	1	01MAY01	01MAY01	67
23W78B1	Tank U-107 Evaluate SW Pumping Data	60	10JUN01	08AUG01	0
23W78B2	Tank U-107 Evaluate In-Tank Video Data	2	07AUG01	08AUG01	0
23W78B3	Tank U-107 Prep Justif Letter/Declare Complete	10	09AUG01	22AUG01	0
23W80A	Tank U-107 Pit Isolation Design	30	20MAR01	30APR01	80
23W80B	Tank U-107 Isolation Planning	10	02MAY01	15MAY01	69
23W80C	Tank U-107 Isolation Stage Equipment	10	23AUG01	06SEP01	0
23W80D	Tank U-107 Isolation Work	10	07SEP01	20SEP01	0
23W80E	Tank U-107 Isolation Complete Documentation	20	21SEP01	18OCT01	0
23WMS	Tank U-107 Tank Stabilization/Isolation Compl	0		18OCT01	0



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.48.08 Stabilize and Isolate Tank U-108					
1.01.02.01.04.48.08.01 Prepare Tank U-108 for Pumping					
23X05A	U-108 Kick off Meeting	1	10MAY99*	10MAY99	29
23X05B	U-108 Farm Walkdown	10	08JUN99*	21JUN99	20
23X05C	Tank U-108 Per Tank Walkdown	5	29JUL99*	04AUG99	21
23X10C	Tank U-108 Instl Dsn - Upgr WFIE	30	29JUL99	09SEP99	49
23X10D	Tank U-108 Prep/Appr ECN Cover Block Modif.	25	05AUG99	09SEP99	82
23X10E	Tank U-108 Prep Dsn Media to Install FG	25	05AUG99	09SEP99	69
23X10F	Tank U-108 Prep/Appr ECN Upgrade Leak	35	05AUG99	23SEP99	27
23X10K	Tank U-108 Instl Dsn - SWP Screen	25	05AUG99	09SEP99	85
23X10L	Tank U-108 Instl Dsn - Install Pump Jumper	30	05AUG99	16SEP99	21
23X10M	Tank U-108 Instl Dsn - Instl Vlv Pit Jump (2)	25	05AUG99	09SEP99	22
23X10U	Tank U-108 Instl Dsn - Infrastruc (Elect)	35	16AUG99	04OCT99	20
23X15B	Tank U-108 New Pump Jumper (1 ea)	40	17SEP99	11NOV99	21
23X15D	Tank U-108 Fab Pit Valve Jumpers (2)	40	10SEP99	04NOV99	22
23X18A	Tank U-108 - Work Planning	30	08JUN99	21JUL99	93
23X18B	Tank U-108 - Stage Parts	20	11MAY99	08JUN99	122
23X18C	Tank U-108 - Perform Mods	18	22JUL99	16AUG99	93
23X18D	Tank U-108 Restoration	18	17AUG99	10SEP99	123
23X20A	Tank U-108 Plan/Modify Pump	15	12NOV99	06DEC99	21
23X20B	Tank U-108 Plan Run-In	10	12NOV99	29NOV99	21
23X20C	Tank U-108 Pump Run-In	3	30NOV99	02DEC99	21
23X30A	Tank U-108 FGM Planning	10	02NOV99	15NOV99	22
23X30B	Tank U-108 FGM Install	5	16NOV99	22NOV99	22
23X30C	Tank U-108 FGM Perform Calibration	2	30NOV99	01DEC99	22
23X30D	Tank U-108 FGM Perform OTP	3	23NOV99	29NOV99	22
23X40A	Tank U-108 Exhauster Planning	10	02NOV99	15NOV99	79
23X40B	Tank U-108 Stage Materials	5	09NOV99	15NOV99	79
23X40G	Tank U-108 (OTP) Exhauster	6	24NOV99	03DEC99	79
23X45C	Tank U-108 Upgrade/WFIE Cabinet	30	05OCT99	15NOV99	32
23X50A	Tank U-108 Saltwell Screen Planning	10	26AUG99	09SEP99	85
23X50B	Tank U-108 Saltwell Screen - Stage & Prep	1	10SEP99	10SEP99	85
23X50C	Tank U-108 Saltwell Screen - Install	2	13SEP99	14SEP99	85
23X50D	Tank U-108 Saltwell Screen - Restoration	1	15SEP99	15SEP99	85
23X52A	Tank U-108 Upgr Infr - Electrical	30	05OCT99	15NOV99	22
23X52B	U-108 Upgr Infr - Water	30	05OCT99	15NOV99	22
23X52C	Tank U-108 Upgr Infr - Leak Detectors	30	05OCT99	15NOV99	20
23X52D	Tank U-108 Upgr Infr - Heat Trace	30	05OCT99	15NOV99	22
23X52E	Tank U-108 Upgr Infr - Instrument Upgrades	30	05OCT99	15NOV99	22
23X54A1	Tank U-108 Review/Verify Profile Sht Complete	3	11MAY99	13MAY99	130
23X54A2	Tank U-108 Calc Inputs for Time 25% LFL	5	14MAY99	20MAY99	156



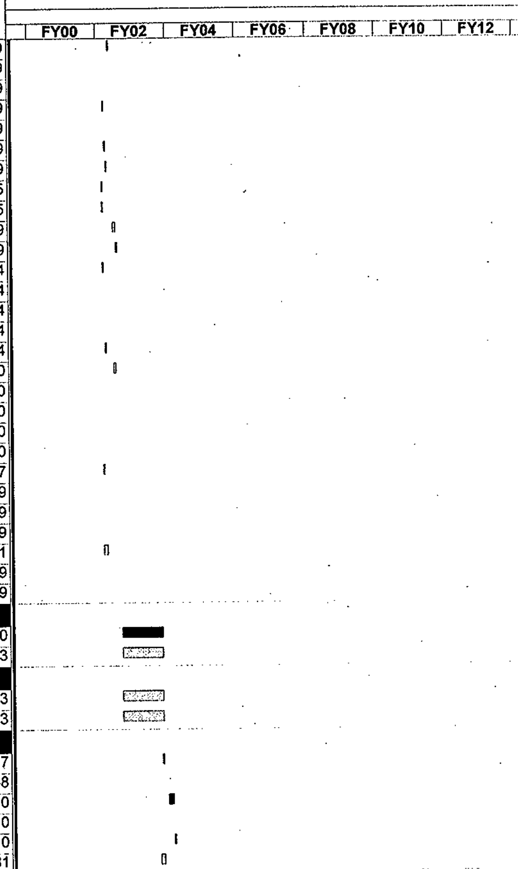
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23X54A3	Tank U-108 Calc Inputs for Time 25% LFL	2	21MAY99	24MAY99	156
23X54A4	Tank U-108 Determn DCRT Time to 25% LFL	2	21MAY99	24MAY99	156
23X54A5	Tank U-108 Compl Compatability Compliance	6	23JUN99	30JUN99	130
23X54A6	Tank U-108 Write/Review Issue White Paper	3	01JUL99	07JUL99	130
23X54A7	Tank U-108 Perform Assessment/Rvw/Approve	5	08JUL99	14JUL99	130
23X54A8	Tank U-108 Management review & approval	5	15JUL99	21JUL99	130
23X54B1	Tank U-108 Review ANOVA Results	2	11MAY99	12MAY99	130
23X54B2	Tank U-108 Gather Process Data (EVAP/FLOW	5	13MAY99	19MAY99	130
23X54B3	Tank U-108 Perform Calculations	5	20MAY99	26MAY99	130
23X54B4	Tank U-108 Prepare Appendix to SD	3	27MAY99	01JUN99	130
23X54B5	Tank U-108 Write Supporting Document	15	02JUN99	22JUN99	130
23X56A	Tank U-108 Plan OTP	10	02NOV99	15NOV99	20
23X56B	Tank U-108 Engineering Plan OTP Saltwell Sys	10	02NOV99	15NOV99	20
23X56D	Tank U-108 Perform OTP	12	16NOV99	03DEC99	20
23X56E	Tank U-108 OTP Closeout	10	06DEC99	17DEC99	20
23X60A	Tank U-108 Hydro - Planning (1 Xfr Line) (4)	10	08JUN99	21JUN99	131
23X60B	Tank U-108 Hydro - Stage Equipment (4)	1	17AUG99	17AUG99	93
23X60C	Tank U-108 Hydro - Set Up (4)	4	18AUG99	23AUG99	93
23X60D	Tank U-108 Hydro- Perform Hydro Test (4)	3	24AUG99	26AUG99	93
23X60E	Tank U-108 Hydro - Reconfig Pits/Restore (4)	5	27AUG99	02SEP99	93
23X62A	Tank U-108 Pit Jmpr/Mod Cover Blks Planning	20	05NOV99	06DEC99	22
23X62B	Tank U-108 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	07DEC99	07DEC99	22
23X62C	Tank U-108 Pit Jmpr/Mod Cover Blks Field Work	3	08DEC99	10DEC99	22
23X62D	Tank U-108 Pit Jmpr/Mod Cover Blks (3)	1	13DEC99	13DEC99	22
23X62E	Tank U-108 Pit Jmpr/Mod Cover Blks Restorate	2	14DEC99	15DEC99	22
23X64A	Tank U-108 Planning	10	08JUN99	21JUN99	144
23X64B	Tank U-108 Stage/Prep Equipment	1	20DEC99	20DEC99	20
23X64C	Tank U-108 Perf Lance/Install Screen	4	21DEC99	28DEC99	20
23X64D	Tank U-108 Restoration	1	29DEC99	29DEC99	20
23X72A	Tank U-108 Write Xfr Procedure for SW Pumping	20	08JUN99	07JUL99	138
23X72B	Tank U-108 Perform Mgt Assessment Pre-Start	2	28DEC99	29DEC99	20
23X72C	Tank U-108 Perform Prereq's for SW Pumping	2	30DEC99	31DEC99	20
1.01.02.01.04.48.08.02 Pump Tank U-108					
23X72D1	Pump Tank U-108	455	01FEB00*	30APR01	0
23X72D2	Tank U-108 Perf Weekly Flush during SW	314	01FEB00	30APR01	608
1.01.02.01.04.48.08.03 SWP System Maint & Operability Tank U-108					
23X68A	Tank U-108 (Annual) CM	307	01FEB00	19APR01	608
23X68B	Tank U-108 (Annual) PM	314	01FEB00	30APR01	608
1.01.02.01.04.48.08.04 Isolation & Intrusion Prevention Tank U-108					
23X78A1	Tank U-108 Prepare WP for In-Tank Video	5	24APR01	30APR01	28
23X78A2	Tank U-108 Perform In-Tank Video	1	01MAY01	01MAY01	67



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23X78B1	Tank U-108 Evaluate SW Pumping Data	60	10JUN01	08AUG01	0
23X78B2	Tank U-108 Evaluate In-Tank Video Data	2	07AUG01	08AUG01	0
23X78B3	Tank U-108 Prep Justif Letter/Declare Complete	10	09AUG01	22AUG01	0
23X80A	Tank U-108 Pit Isolation Design	30	20MAR01	30APR01	80
23X80B	Tank U-108 Isolation Planning	10	02MAY01	15MAY01	69
23X80C	Tank U-108 Isolation Stage Equipment	10	23AUG01	06SEP01	0
23X80D	Tank U-108 Isolation Work	10	07SEP01	20SEP01	0
23X80E	Tank U-108 Isolation Complete Documentation	20	21SEP01	18OCT01	0
23XMS	Tank U-108 Tank Stabilization/Isolation Compl	0		18OCT01	0
1.01.02.01.04.48.09 Stabilize and Isolate Tank U-109					
1.01.02.01.04.48.09.01 Prepare Tank U-109 for Pumping					
23Y05C	Tank U-109 Per Tank Walkdown	5	01DEC00*	07DEC00	19
23Y10C	Tank U-109 Instl Dsn - Upgr WFIE	30	01DEC00	16JAN01	47
23Y10D	Tank U-109 Prep/Appr ECN Cover Block Modif.	25	08DEC00	16JAN01	80
23Y10E	Tank U-109 Prep Dsn Media to Install FG	25	08DEC00	16JAN01	67
23Y10K	Tank U-109 Instl Dsn - SWP Screen	25	08DEC00	16JAN01	83
23Y10L	Tank U-109 Instl Dsn - Install Pump Jumper	30	08DEC00	23JAN01	19
23Y10M	Tank U-109 Instl Dsn - Instl Vlv Pit Jump	25	08DEC00	16JAN01	20
23Y15B	Tank U-109 New Pump Jumper (1 ea)	40	24JAN01	21MAR01	19
23Y15D	Tank U-109 Fab Pit Valve Jumpers (1)	40	17JAN01	14MAR01	20
23Y20A	Tank U-109 Plan/Modify Pump	15	22MAR01	11APR01	19
23Y20B	Tank U-109 Plan Run-In	10	22MAR01	04APR01	19
23Y20C	Tank U-109 Pump Run-In	3	05APR01	09APR01	19
23Y30A	Tank U-109 FGM Planning	10	03JAN01	16JAN01	67
23Y30B	Tank U-109 FGM Install	5	17JAN01	23JAN01	67
23Y30C	Tank U-109 FGM Perform Calibration	2	29JAN01	30JAN01	67
23Y30D	Tank U-109 FGM Perform OTP	3	24JAN01	26JAN01	67
23Y40A	Tank U-109 Exhauster Planning	10	08DEC00	21DEC00	440
23Y40B	Tank U-109 Stage Materials	5	15DEC00	21DEC00	440
23Y40G	Tank U-109 (OTP) Exhauster	6	04JAN01	11JAN01	440
23Y45C	Tank U-109 Upgrade/WFIE Cabinet	30	17JAN01	28FEB01	47
23Y50A	Tank U-109 Saltwell Screen Planning	10	03JAN01	16JAN01	83
23Y50B	Tank U-109 Saltwell Screen - Stage & Prep	1	17JAN01	17JAN01	83
23Y50C	Tank U-109 Saltwell Screen - Install	2	18JAN01	19JAN01	83
23Y50D	Tank U-109 Saltwell Screen - Restoration	1	22JAN01	22JAN01	83
23Y54A1	Tank U-109 Review/Verify Profile Sht Complete	3	08DEC00	12DEC00	69
23Y54A2	Tank U-109 Calc Inputs for Time 25% LFL	5	13DEC00	19DEC00	95
23Y54A3	Tank U-109 Calc Inputs for Time 25% LFL	2	20DEC00	21DEC00	95
23Y54A4	Tank U-109 Determn DCRT Time to 25% LFL	2	20DEC00	21DEC00	95
23Y54A5	Tank U-109 Compl Compatability Compliance	6	24JAN01	31JAN01	69
23Y54A6	Tank U-109 Write/Review Issue White Paper	3	01FEB01	05FEB01	69

FY00 FY02 FY04 FY06 FY08 FY10 FY12

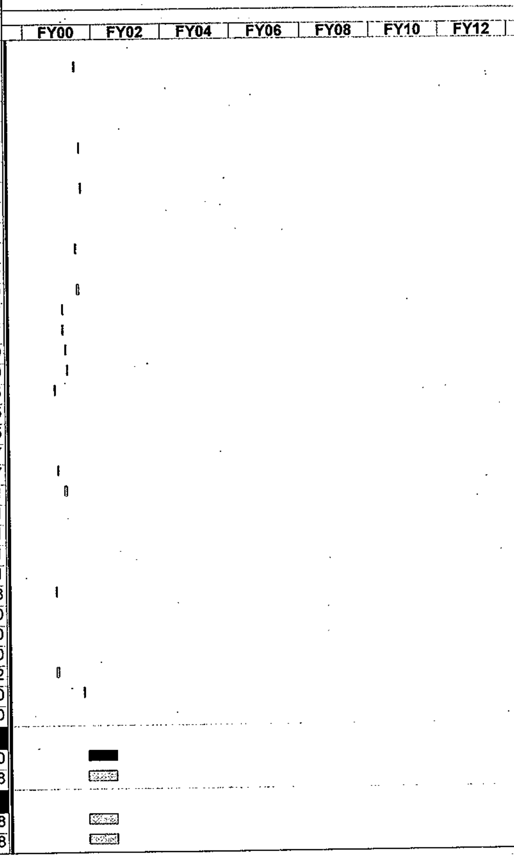
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23Y54A7	Tank U-109 Perform Assessment/Rvw/Approve	5	06FEB01	12FEB01	69
23Y54A8	Tank U-109 Management review & approval	5	13FEB01	20FEB01	69
23Y54B1	Tank U-109 Review ANOVA Results	2	08DEC00	11DEC00	69
23Y54B2	Tank U-109 Gather Process Data (EVAP/FLOW	5	12DEC00	18DEC00	69
23Y54B3	Tank U-109 Perform Calculations	5	19DEC00	27DEC00	69
23Y54B4	Tank U-109 Prepare Appendix to SD	3	28DEC00	02JAN01	69
23Y54B5	Tank U-109 Write Supporting Document	15	03JAN01	23JAN01	69
23Y56A	Tank U-109 Plan OTP	10	01DEC00	14DEC00	85
23Y56B	Tank U-109 Engineering Plan OTP Saltwell Sys	10	01DEC00	14DEC00	85
23Y56D	Tank U-109 Perform OTP	12	23MAR01	09APR01	19
23Y56E	Tank U-109 OTP Closeout	10	10APR01	23APR01	19
23Y60A	Tank U-109 Hydro - Planning (1 Xfr Line) (3)	10	01DEC00	14DEC00	94
23Y60B	Tank U-109 Hydro - Stage Equipment (3)	1	15DEC00	15DEC00	94
23Y60C	Tank U-109 Hydro - Set Up (3)	4	18DEC00	21DEC00	94
23Y60D	Tank U-109 Hydro - Perform Hydro Test (3)	3	22DEC00	28DEC00	94
23Y60E	Tank U-109 Hydro - Reconfig Pits/Restore (3)	5	29DEC00	05JAN01	94
23Y62A	Tank U-109 Pit Jmpr/Mod Cover Blks Planning	20	15MAR01	11APR01	20
23Y62B	Tank U-109 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	12APR01	12APR01	20
23Y62C	Tank U-109 Pit Jmpr/Mod Cover Blks Field Work	3	13APR01	17APR01	20
23Y62D	Tank U-109 Pit Jmpr/Mod Cover Blks	1	18APR01	18APR01	20
23Y62E	Tank U-109 Pit Jmpr/Mod Cover Blks	2	19APR01	20APR01	20
23Y64A	Tank U-109 Planning	10	01DEC00	14DEC00	107
23Y64B	Tank U-109 Stage/Prep Equipment	1	24APR01	24APR01	19
23Y64C	Tank U-109 Perf Lance/Install Screen	4	25APR01	30APR01	19
23Y64D	Tank U-109 Restoration	1	01MAY01	01MAY01	19
23Y72A	Tank U-109 Write Xfr Procedure for SW Pumping	20	01DEC00	02JAN01	101
23Y72B	Tank U-109 Perform Mgt Assessment Pre-Start	2	30APR01	01MAY01	19
23Y72C	Tank U-109 Perform Prereq's for SW Pumping	2	02MAY01	03MAY01	19
1.01.02.01.04.48.09.02 Pump Tank U-109					
23Y72D1	Pump Tank U-109	426	01JUN01*	31JUL02	0
23Y72D2	Tank U-109 Perf Weekly Flush during SW	293	01JUN01	01AUG02	293
1.01.02.01.04.48.09.03 SWP System Maint & Operability Tank U-109					
23Y68A	Tank U-109 (Annual) CM	293	01JUN01	01AUG02	293
23Y68B	Tank U-109 (Annual) PM	293	01JUN01	01AUG02	293
1.01.02.01.04.48.09.04 Isolation & Intrusion Prevention Tank U-109					
23Y78A1	Tank U-109 Prepare WP for In-Tank Video	5	25JUL02	31JUL02	27
23Y78A2	Tank U-109 Perform In-Tank Video	1	01AUG02	01AUG02	68
23Y78B1	Tank U-109 Evaluate SW Pumping Data	60	10SEP02	08NOV02	0
23Y78B2	Tank U-109 Evaluate In-Tank Video Data	2	07NOV02	08NOV02	0
23Y78B3	Tank U-109 Prep Justif Letter/Declare Complete	10	11NOV02	22NOV02	0
23Y80A	Tank U-109 Pit Isolation Design	30	18JUN02	31JUL02	81



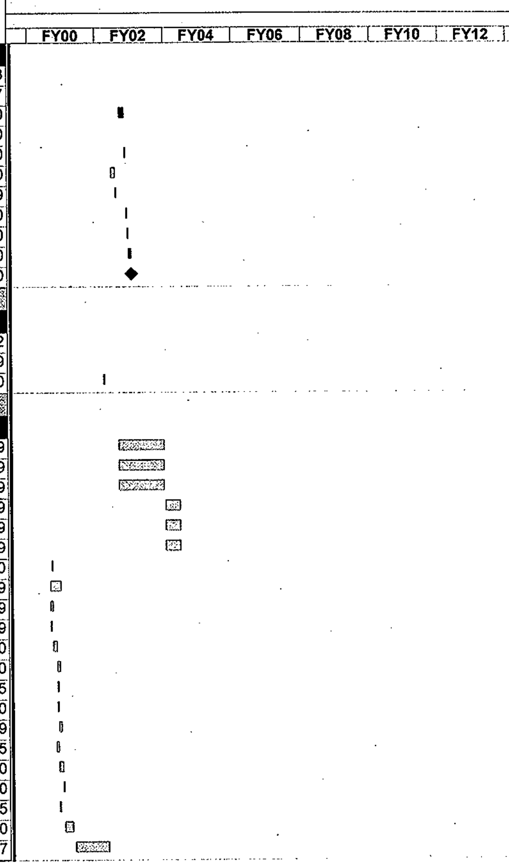
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23Y80B	Tank U-109 Isolation Planning	10	02AUG02	15AUG02	70
23Y80C	Tank U-109 Isolation Stage Equipment	10	25NOV02	10DEC02	0
23Y80D	Tank U-109 Isolation Work	10	11DEC02	26DEC02	0
23Y80E	Tank U-109 Isolation Complete Documentation	20	27DEC02	24JAN03	0
23YMS	Tank U-109 Tank Stabilization/Isolation Compl	0		24JAN03	0
1.01.02.01.04.48.10 Stabilize and Isolate Tank U-110					
1.01.02.01.04.48.10.04 Isolation & Intrusion Prevention Tank U-110					
23085N1	Tank U-110 Pit Isolation Design	30	01APR98	12MAY98	1,312
23085N2	Tank U-110 Isolation Planning	10	15APR98	28APR98	1,332
23085N3	Tank U-110 Isolation Stage Equipment	10	13MAY98	27MAY98	1,312
23085N4	Tank U-110 Isolation Work	10	28MAY98	10JUN98	1,312
23085N5	Tank U-110 Isolation Complete Documentation	20	11JUN98	10JUL98	1,312
1.01.02.01.04.48.11 Stabilize and Isolate Tank U-111					
1.01.02.01.04.48.11.01 Prepare Tank U-111 for Pumping					
23Z05C	Tank U-111 Per Tank Walkdown	5	10AUG99*	16AUG99	20
23Z10C	U-111 Instl Dsn - Upgr WFIE	30	17AUG99	28SEP99	143
23Z10D	Tank U-111 Prep/Appr ECN Cover Block Modif.	25	17AUG99	21SEP99	181
23Z10E	Tank U-111 Prep Dsn Media to Install FG	25	17AUG99	21SEP99	168
23Z10K	Tank U-111 Instl Dsn - SWP Screen	25	17AUG99	21SEP99	20
23Z10L	Tank U-111 Instl Dsn - Install Pump Jumper	30	17AUG99	28SEP99	120
23Z10M	Tank U-111 Instl Dsn - Instl Vlv Pit Jump (2)	25	17AUG99	21SEP99	121
23Z15B	U-111 New Pump Jumper (1 ea)	40	29SEP99	23NOV99	120
23Z15D	Tank U-111 Fab Pit Valve Jumpers (2)	40	22SEP99	16NOV99	121
23Z20A	Tank U-111 Plan/Modify Pump	15	24NOV99	16DEC99	120
23Z20B	Tank U-111 Plan Run-In	10	24NOV99	09DEC99	120
23Z20C	Tank U-111 Pump Run-In	3	10DEC99	14DEC99	120
23Z25A	Tank U-111 Write PM/TSAP	10	10AUG99	23AUG99	61
23Z25B	Tank U-111 Plan/Schedule/Obtain Materials	22	10AUG99	09SEP99	61
23Z25C	Tank U-111 Obtain Grab Sample	3	08NOV99	10NOV99	20
23Z25D	Tank U-111 Analyze Grab Sample	66	11NOV99	17FEB00	20
23Z25E	Tank U-111 Issue Lab Analysis Final Report	22	18FEB00	21MAR00	20
23Z25F	Tank U-111 Enter Lab Data into TCD	1	22MAR00	22MAR00	20
23Z30A	Tank U-111 FGM Planning (2)	10	02NOV99	15NOV99	129
23Z30B	Tank U-111 FGM Install (2)	5	16NOV99	22NOV99	129
23Z30C	Tank U-111 FGM Perform Calibration (2)	2	30NOV99	01DEC99	129
23Z30D	Tank U-111 FGM Perform OTP (2)	3	23NOV99	29NOV99	129
23Z45C	Tank U-111 Upgrade/WFIE Cabinet	30	05OCT99	15NOV99	139
23Z50A	Tank U-111 Saltwell Screen Planning	10	08SEP99	21SEP99	20
23Z50B	Tank U-111 Saltwell Screen - Stage & Prep	1	22SEP99	22SEP99	20
23Z50C	Tank U-111 Saltwell Screen - Install	2	23SEP99	24SEP99	20
23Z50D	Tank U-111 Saltwell Screen - Restoration	1	27SEP99	27SEP99	184

FY00 FY02 FY04 FY06 FY08 FY10 FY12

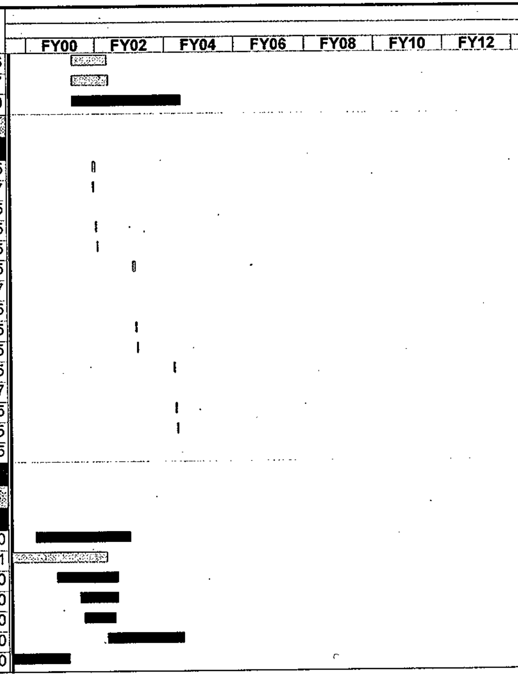
Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23Z54A1	Tank U-111 Review/Verify Profile Sht Complete	3	23MAR00	27MAR00	20
23Z54A2	Tank U-111 Calc Inputs for Time 25% LFL	5	28MAR00	03APR00	46
23Z54A3	Tank U-111 Calc Inputs for Time 25% LFL	2	04APR00	05APR00	46
23Z54A4	Tank U-111 Determn DCRT Time to 25% LFL	2	04APR00	05APR00	46
23Z54A5	Tank U-111 Compl Compatability Compliance	6	04MAY00	11MAY00	20
23Z54A6	Tank U-111 Write/Review Issue White Paper	3	12MAY00	16MAY00	20
23Z54A7	Tank U-111 Perform Assessment/Rvw/Approve	5	17MAY00	23MAY00	20
23Z54A8	Tank U-111 Management review & approval	5	24MAY00	31MAY00	20
23Z54B1	Tank U-111 Review ANOVA Results	2	23MAR00	24MAR00	20
23Z54B2	Tank U-111 Gather Process Data (EVAP/FLOW	5	27MAR00	31MAR00	20
23Z54B3	Tank U-111 Perform Calculations	5	03APR00	07APR00	20
23Z54B4	Tank U-111 Prepare Appendix to SD	3	10APR00	12APR00	20
23Z54B5	Tank U-111 Write Supporting Document	15	13APR00	03MAY00	20
23Z56A	Tank U-111 Plan OTP	10	02NOV99	15NOV99	127
23Z56B	Tank U-111 Engineering Plan OTP Saltwell Sys	10	02NOV99	15NOV99	127
23Z56D	Tank U-111 Perform OTP	12	29NOV99	14DEC99	120
23Z56E	Tank U-111 OTP Closeout	10	15DEC99	30DEC99	120
23Z60A	Tank U-111 Hydro - Planning (1 Xfr Line) (2)	10	10AUG99	23AUG99	195
23Z60B	Tank U-111 Hydro - Stage Equipment (2)	1	24AUG99	24AUG99	195
23Z60C	Tank U-111 Hydro - Set Up (2)	4	25AUG99	30AUG99	195
23Z60D	Tank U-111 Hydro - Perform Hydro Test (2)	3	13SEP99	15SEP99	187
23Z60E	Tank U-111 Hydro - Reconfig Pits/Restore (2)	5	16SEP99	22SEP99	187
23Z62A	Tank U-111 Pit Jmpr/Mod Cover Blks Planning	20	17NOV99	16DEC99	121
23Z62B	Tank U-111 Pit Jmpr/Mod Cover Blks Stage Eqpt	1	17DEC99	17DEC99	121
23Z62C	Tank U-111 Pit Jmpr/Mod Cover Blks Field Work	3	20DEC99	22DEC99	121
23Z62D	Tank U-111 Pit Jmpr/Mod Cover Blks (2)	1	23DEC99	23DEC99	121
23Z62E	Tank U-111 Pit Jmpr/Mod Cover Blks Restore (2)	2	28DEC99	29DEC99	121
23Z64A	Tank U-111 Planning	10	10AUG99	23AUG99	208
23Z64B	Tank U-111 Stage/Prep Equipment	1	31DEC99	31DEC99	120
23Z64C	Tank U-111 Perf Lance/Install Screen	4	04JAN00	07JAN00	120
23Z64D	Tank U-111 Restoration	1	10JAN00	10JAN00	120
23Z72A	Tank U-111 Write Xfr Procedure for SW Pumping	20	10AUG99	07SEP99	202
23Z72B	Tank U-111 Perform Mgt Assessment Pre-Start	2	30MAY00	31MAY00	20
23Z72C	Tank U-111 Perform Prereq's for SW Pumping	2	01JUN00	02JUN00	20
1.01.02.01.04.48.11.02 Pump Tank U-111					
23Z72D1	Pump Tank U-111	304	01JUL00*	30APR01	0
23Z72D2	Tank U-111 Perf Weekly Flush during SW	207	05JUL00	30APR01	608
1.01.02.01.04.48.11.03 SWP System Maint & Operability Tank U-111					
23Z68A	Tank U-111 (Annual) CM	207	05JUL00	30APR01	608
23Z68B	Tank U-111 (Annual) PM	207	05JUL00	30APR01	608



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.48.11.04 Isolation & Intrusion Prevention Tank U-111					
23Z78A1	Tank U-111 Prepare WP for In-Tank Video	5	24APR01	30APR01	28
23Z78A2	Tank U-111 Perform In-Tank Video	1	01MAY01	01MAY01	67
23Z78B1	Tank U-111 Evaluate SW Pumping Data	60	10JUN01	08AUG01	0
23Z78B2	Tank U-111 Evaluate In-Tank Video Data	2	07AUG01	08AUG01	0
23Z78B3	Tank U-111 Prep Justif Letter/Declare Complete	10	09AUG01	22AUG01	0
23Z80A	Tank U-111 Pit Isolation Design	30	20MAR01	30APR01	80
23Z80B	Tank U-111 Isolation Planning	10	02MAY01	15MAY01	69
23Z80C	Tank U-111 Isolation Stage Equipment	10	23AUG01	06SEP01	0
23Z80D	Tank U-111 Isolation Work	10	07SEP01	20SEP01	0
23Z80E	Tank U-111 Isolation Complete Documentation	20	21SEP01	18OCT01	0
23ZMS	Tank U-111 Tank Stabilization/Isolation Compl	0		18OCT01	0
1.01.02.01.04.48.20 Tank Ventilation Sys SST 241-U Tank Farm					
1.01.02.01.04.48.20.01 Tank Ventilation Sys SST 241-U Tank Farm					
23T40E	Tank U-103 Installation & Tie-In	6	16NOV99	23NOV99	372
23X40E	Tank U-108 Installation & Tie-In	6	16NOV99	23NOV99	79
23Y40E	Tank U-109 Installation & Tie-In	6	22DEC00	03JAN01	440
1.01.02.01.04.48.30 DCRT 244-U for SST 241-U Tank Farm					
1.01.02.01.04.48.30.01 DCRT 244-U for SST 241-U Tank Farm					
23T32A	Tank U-103 Prepare WP for DCRT PM's & CM's	337	01JUN01	03OCT02	249
23T32B1	Tank U-103 Perf Preventative Mainte on DCRT	337	01JUN01	03OCT02	249
23T32B2	Tank U-103 Perf Corrective Maintenance on	337	01JUN01	03OCT02	249
23V32A	Tank U-106 Prepare WP for DCRT PM's & CM's	103	15OCT02	14MAR03	139
23V32B1	Tank U-106 Perf Preventative Mainte on DCRT	103	15OCT02	14MAR03	139
23V32B2	Tank U-106 Perf Corrective Maintenance on	103	15OCT02	14MAR03	139
23X17A1	Perform Eng WD's/Project Planning 244-U	10	08JUN99	21JUN99	20
23X17A2	Prepare ECN's for 244-U	80	11MAY99	02SEP99	29
23X17A3	Revise Maintenance Procedures 244-U	20	11MAY99	08JUN99	69
23X17A4	Environmental Permitting for 244-U	10	11MAY99	24MAY99	169
23X17A5	Prepare/Approve WP 244-U	25	22JUN99	28JUL99	20
23X17B1	Procure Equipment for Installation 244-U	20	22JUL99	18AUG99	110
23X17B2	Perform Site Preparation 244-U	10	29JUL99	11AUG99	45
23X17B3	Install Equipment Labels 244-U	10	29JUL99	11AUG99	20
23X17B4	Perform PM/CM on Existing Equip 244-U	20	06AUG99	02SEP99	29
23X17B5	Revise Ops Procedures 244-U	20	15JUL99	11AUG99	105
23X17B6	Prepare OTP's 1 & 4 for 244-U	25	12AUG99	16SEP99	20
23X17C1	Perform Operational Testing (OTP) 244-U	10	17SEP99	30SEP99	20
23X17C2	Perform Training 244-U	10	12AUG99	25AUG99	105
23X17C3	Perform Readiness Assessment 244-U	60	01OCT99	29DEC99	20
23X32A	Tank U-108 Prepare WP for DCRT PM's & CM's	247	01FEB00	24JAN01	657



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float
23X32B1	Tank U-108 Perf Preventative Mainte on DCRT	256	01FEB00	06FEB01	666
23X32B2	Tank U-108 Perf Corrective Maintenance on	265	01FEB00	20FEB01	657
D2 47A	DCRT 244-U for SST 241-U Tank Farm	783*	01FEB00	14MAR03	0
1.01.02.01.04.48.40 241-U Tank Farm Annual Hydro					
1.01.02.01.04.48.40.01 241-U Tank Farm Annual Hydro					
23X74A	Farm U Annual Hydro - Planning (FY99)	15	05SEP00	25SEP00	165
23X74B	Farm U Annual Hydro - Stage Equipment (FY99)	3	05SEP00	07SEP00	177
23X74C	Farm U Annual Hydro - Set Up (FY99)	5	26SEP00	02OCT00	165
23X74D	Farm U Annual Hydro - Perform Hydro Test	8	03OCT00	12OCT00	165
23X74E	Farm U Annual Hydro - Reconf Pits/Restore	7	13OCT00	23OCT00	165
23X74F	Farm U Annual Hydro - Planning (FY00)	15	23OCT01	12NOV01	165
23X74G	Farm U Annual Hydro - Stage Equipment (FY00)	3	23OCT01	25OCT01	177
23X74H	Farm U Annual Hydro - Set Up (FY00)	5	13NOV01	19NOV01	165
23X74J	Farm U Annual Hydro - Perform Hydro Test	8	20NOV01	03DEC01	165
23X74K	Farm U Annual Hydro - Reconf Pits/Restore	7	04DEC01	12DEC01	165
23X74M	Farm U Annual Hydro - Planning (FY01)	15	16DEC02	08JAN03	165
23X74N	Farm U Annual Hydro - Stage Equipment (FY01)	3	16DEC02	18DEC02	177
23X74P	Farm U Annual Hydro - Set Up (FY01)	5	09JAN03	15JAN03	165
23X74Q	Farm U Annual Hydro - Perform Hydro Test	8	16JAN03	27JAN03	165
23X74R	Farm U Annual Hydro - Reconf Pits/Restore	7	28JAN03	05FEB03	165
1.01.02.01.04.72 SST Stabilization Pumping					
1.01.02.01.04.72.01 Pumping for Remaining SST's (29)					
1.01.02.01.04.72.01.01 Perform Pumping on Remaining SST's (29)					
P1 HAM	Pumping - Group 1	690*	10DEC98	07SEP01	0
P2 HAM	Pumping - Group 2	698*	01APR98	11JAN01	1
P3 HAM	Pumping - Group 3	439*	02AUG99	30APR01	0
P4 HAM	Pumping - Group 4	271*	03APR00	30APR01	0
P5 HAM	Pumping - Group 5	228*	10MAY00	06APR01	0
P6 HAM	Pumping - Group 6	553*	02JAN01	14MAR03	0
P7 HAM	Pumping - Group 7	419*	01APR98	30NOV99	0



APPENDIX E

SINGLE-SHELL TANK INTERIM STABILIZATION LEVEL 1 LOGICS

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CONTENTS

FDH, 1998, SST Interim Stabilization Logic Diagrams, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

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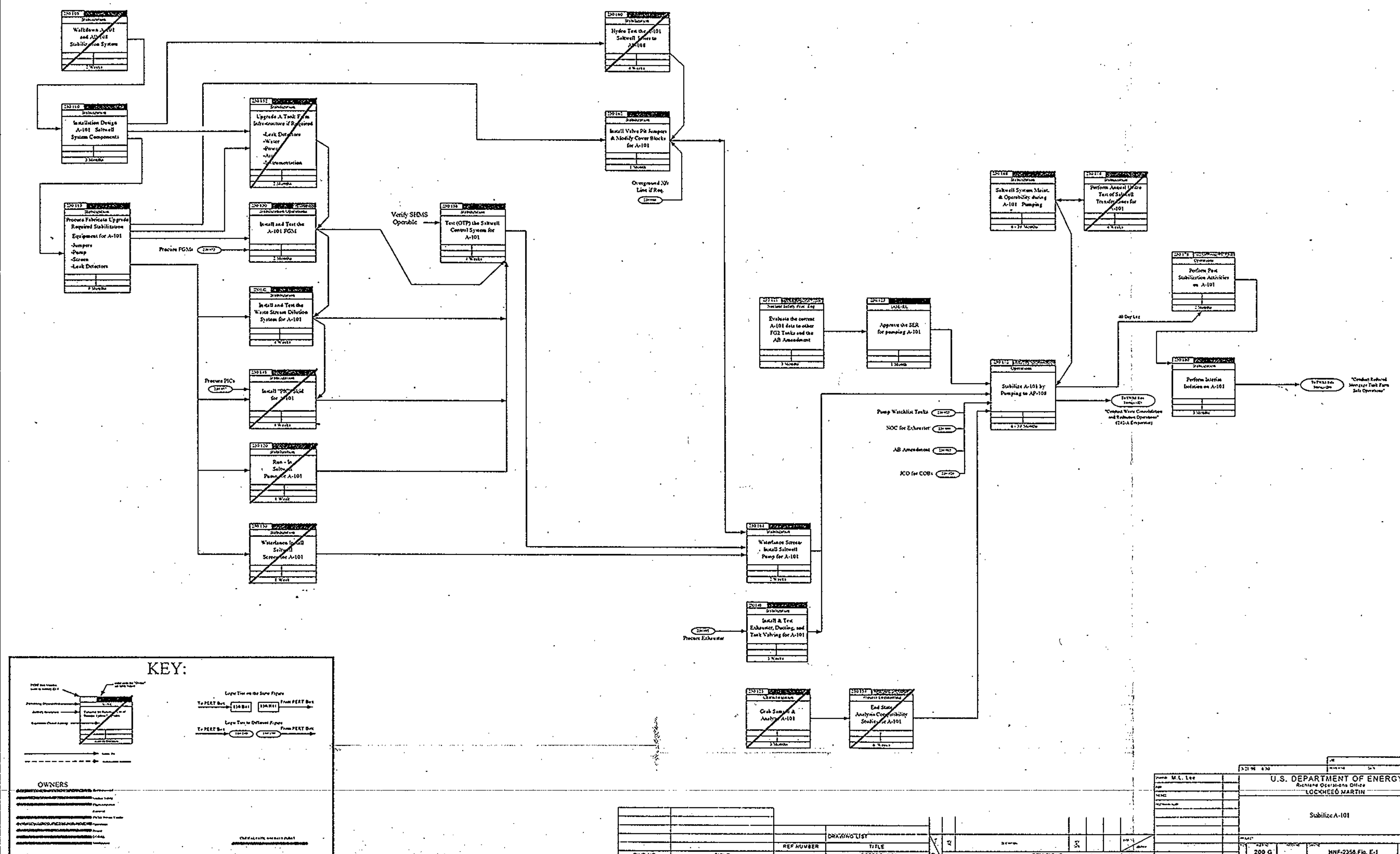
Stabilize A-101

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. A-101 is a Flammable Gas Watchlist Tank.

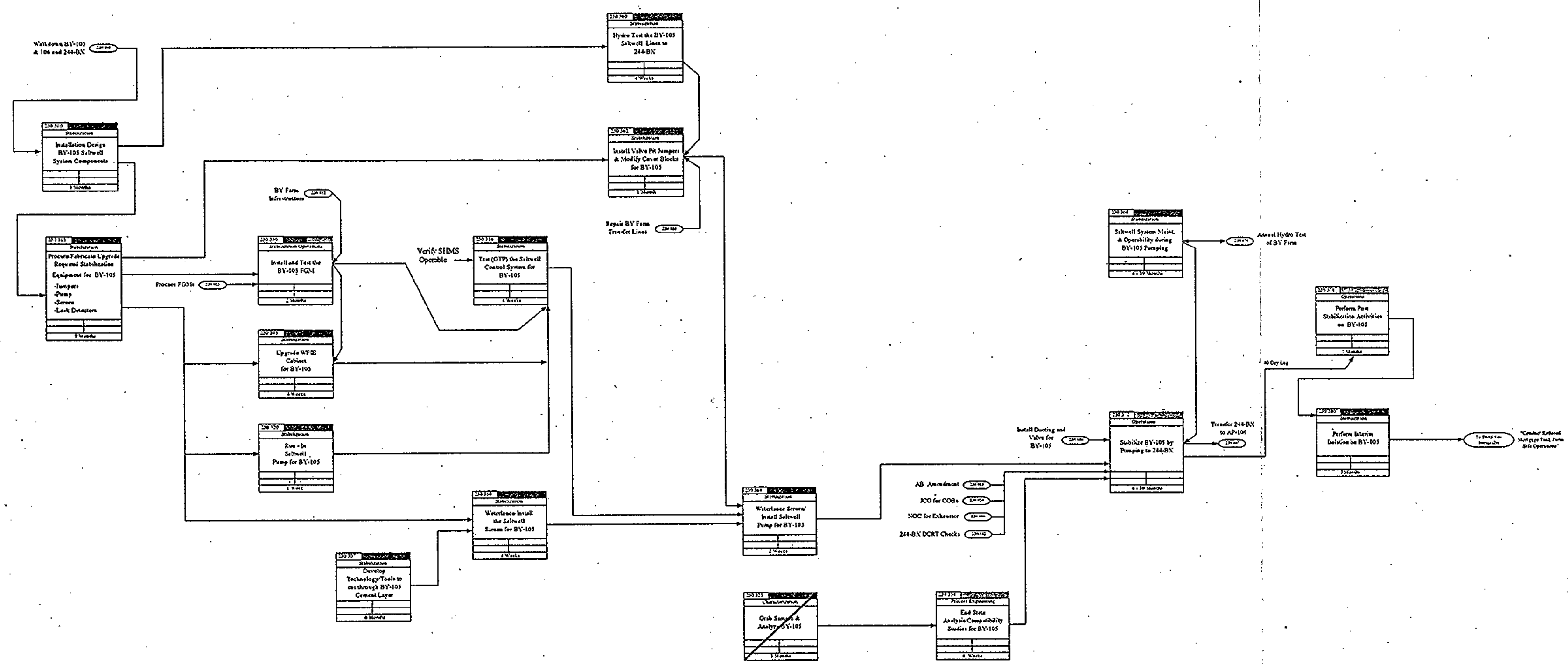


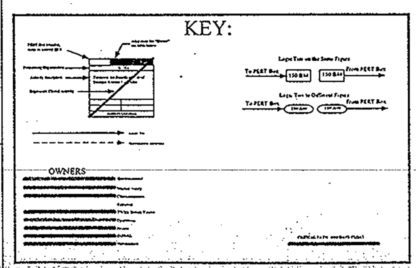
Stabilize BY-105

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure





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Stabilize BY-105

200 G

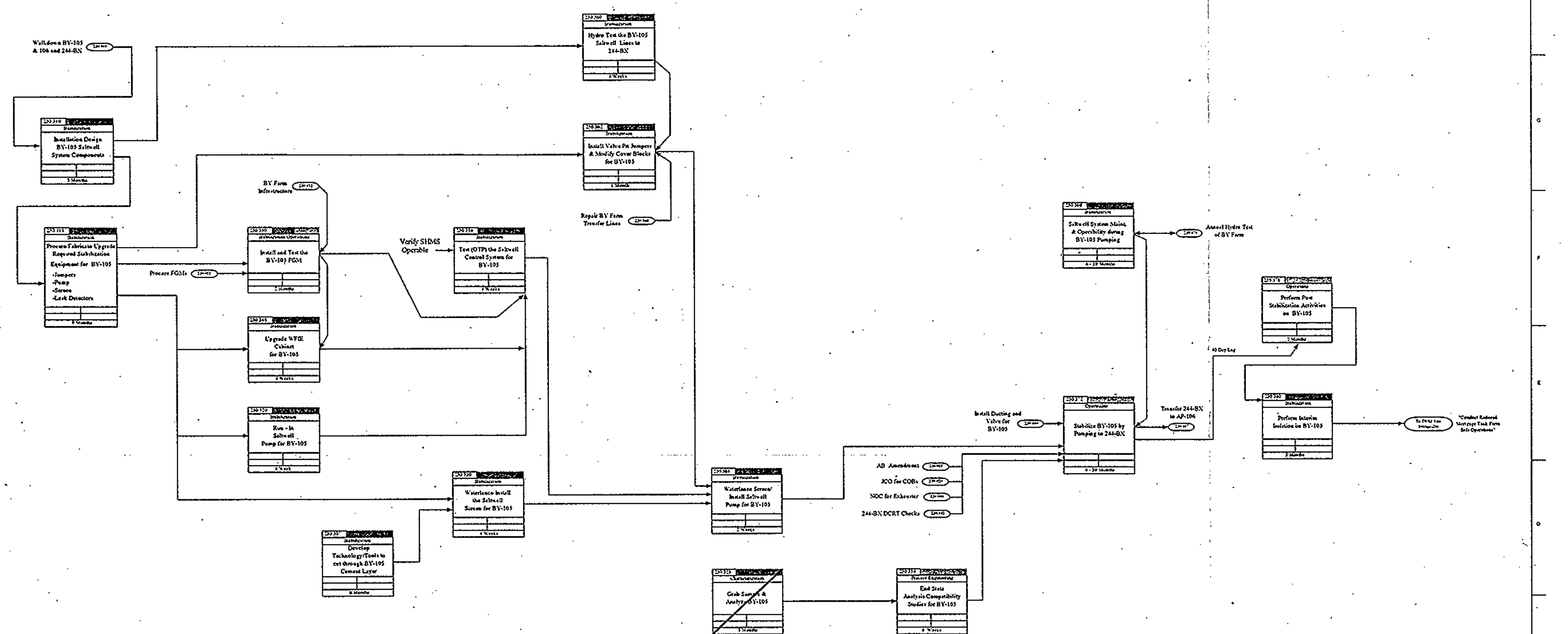
HNF-2358, Fig. E-3

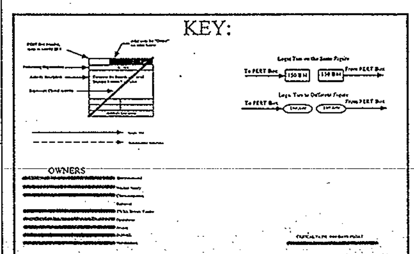
Stabilize BY-105

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure





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Stabilize BY-105

200 G | HNF-2358, Fig. E-3

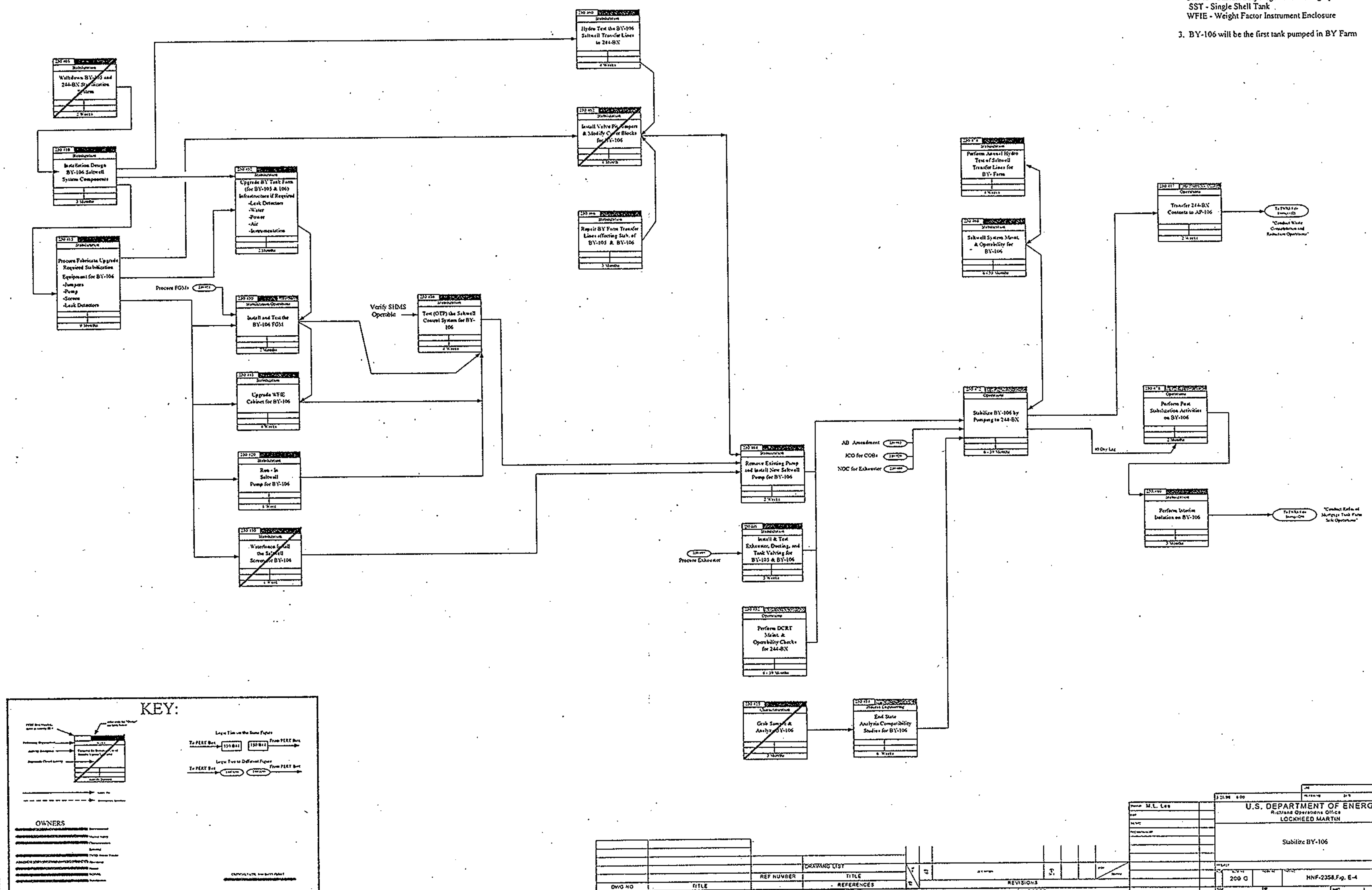
Stabilize BY-106

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. BY-106 will be the first tank pumped in BY Farm



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	Stabilize BY-106
200 G	HNF-2358.Fig. E-4

Stabilize C-103

NOTES:

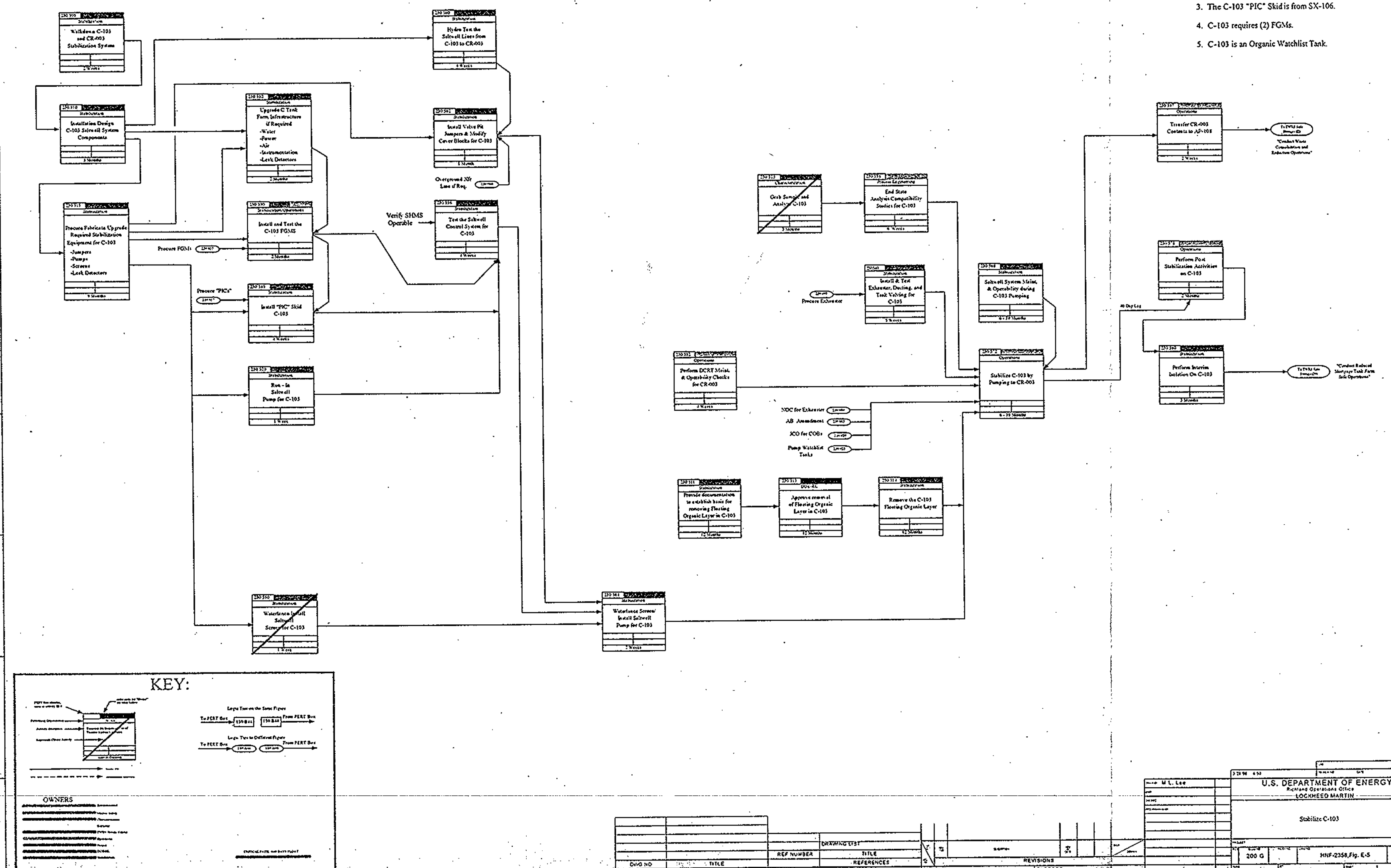
1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. The C-103 "PIC" Skid is from SX-106.

4. C-103 requires (2) FGMs.

5. C-103 is an Organic Watchlist Tank.



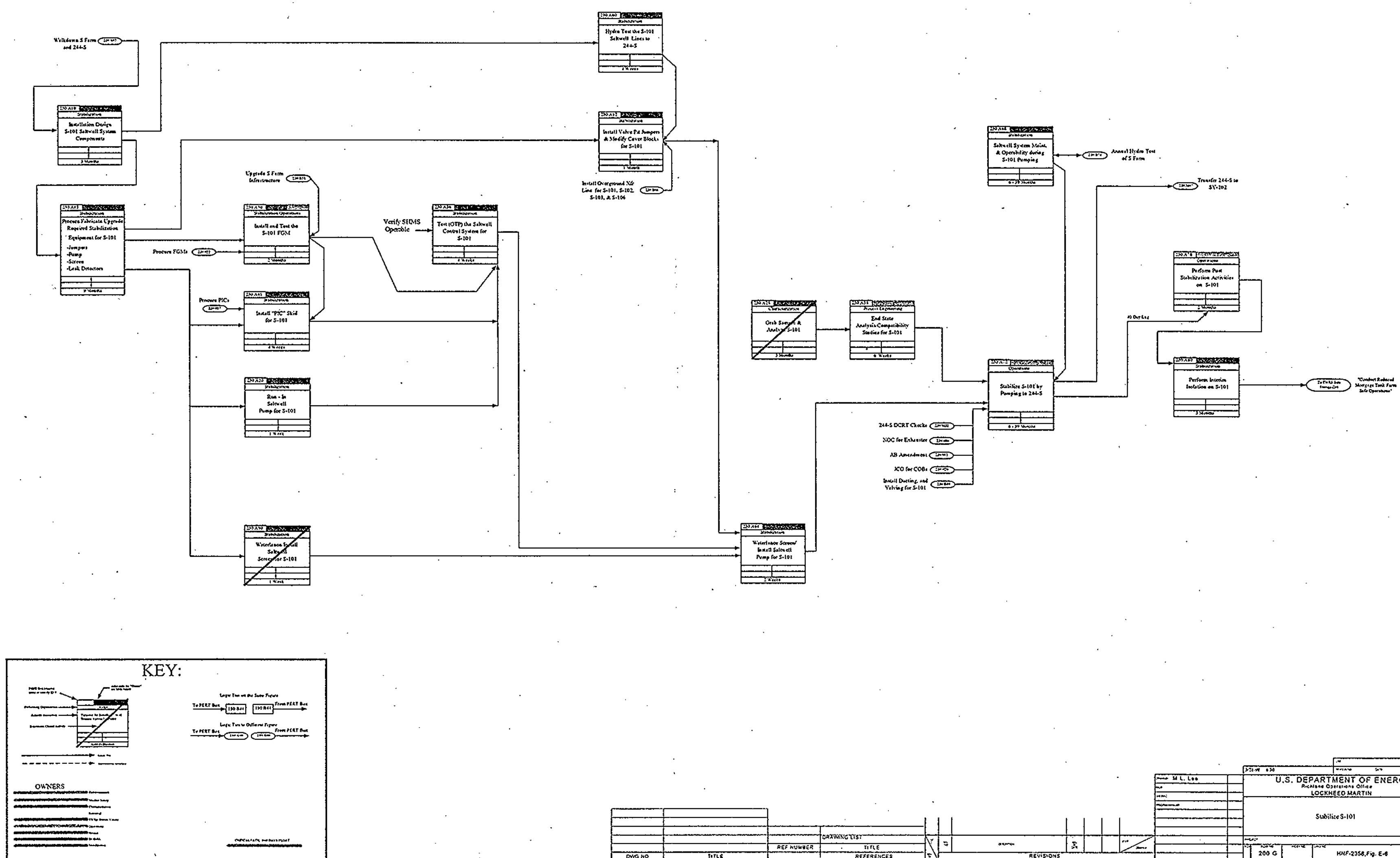
Stabilize S-101

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. The S-101 "PIC" Skid is from SX-104.



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Stabilize S-101

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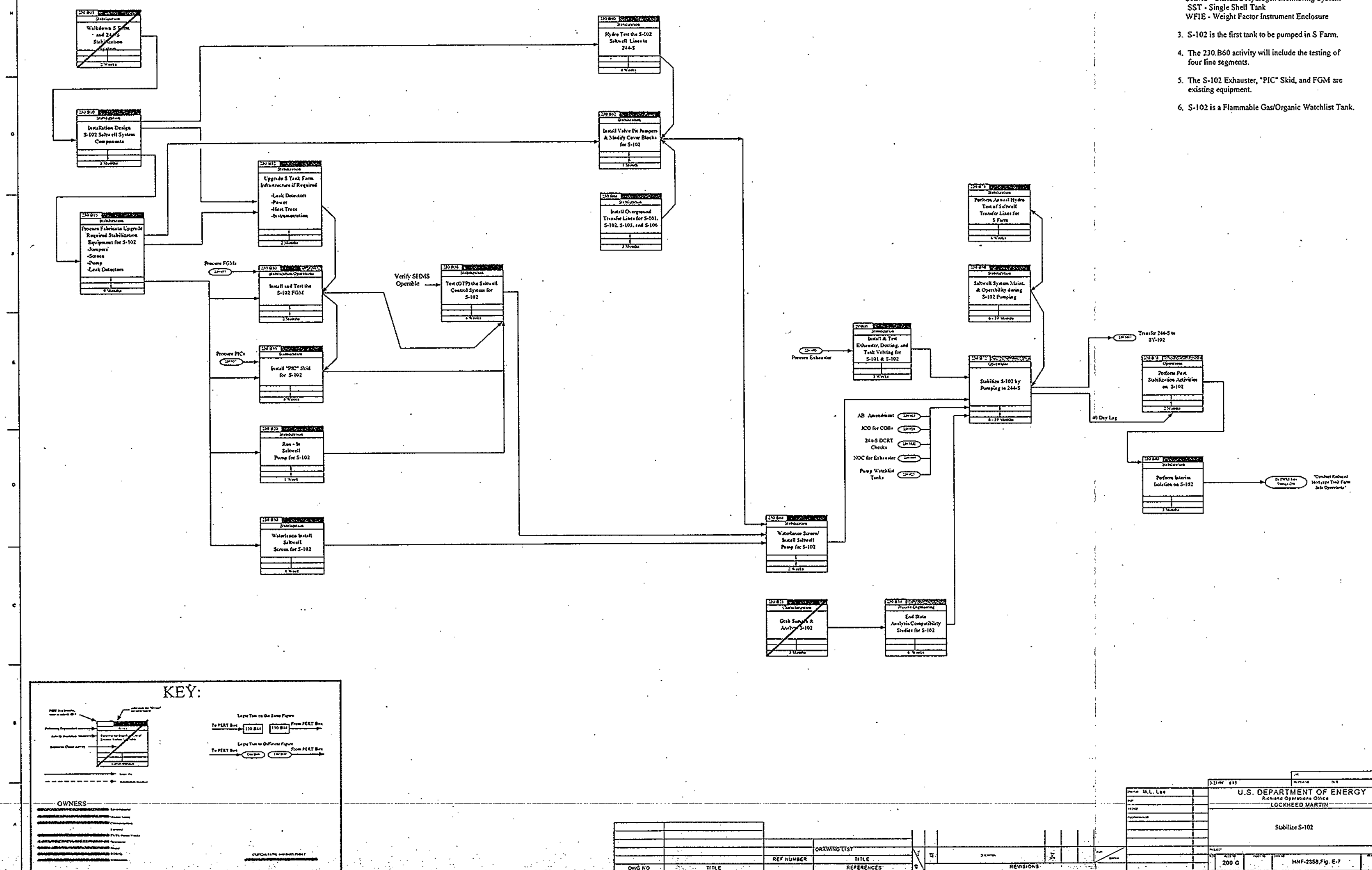
Stabilize S-102



NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. S-102 is the first tank to be pumped in S Farm.
4. The 230.B60 activity will include the testing of four line segments.
5. The S-102 Exhauster, "PIC" Skid, and FGM are existing equipment.
6. S-102 is a Flammable Gas/Organic Watchlist Tank.

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Stabilize S-102

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200 G

HNF-2358,Fig. E-7

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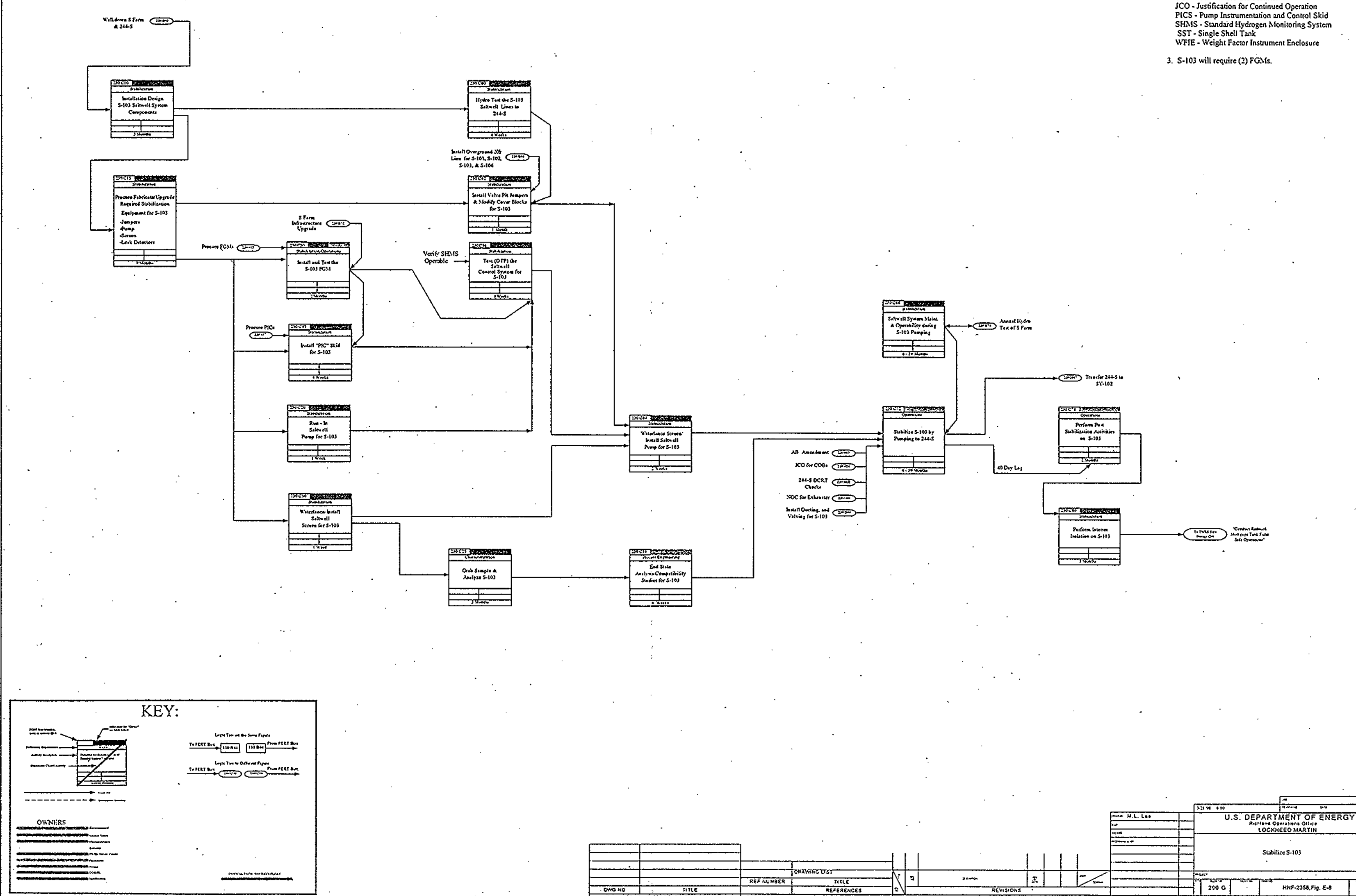
Stabilize S-103

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
DCRT - Double Contained Receiver Tank
DST - Double Shell Tank
FGM - Flammable Gas Monitor
JCO - Justification for Continued Operation
PICS - Pump Instrumentation and Control Skid
SHMS - Standard Hydrogen Monitoring System
SST - Single Shell Tank
WFIE - Weight Factor Instrument Enclosure

3. S-103 will require (2) FGMs.

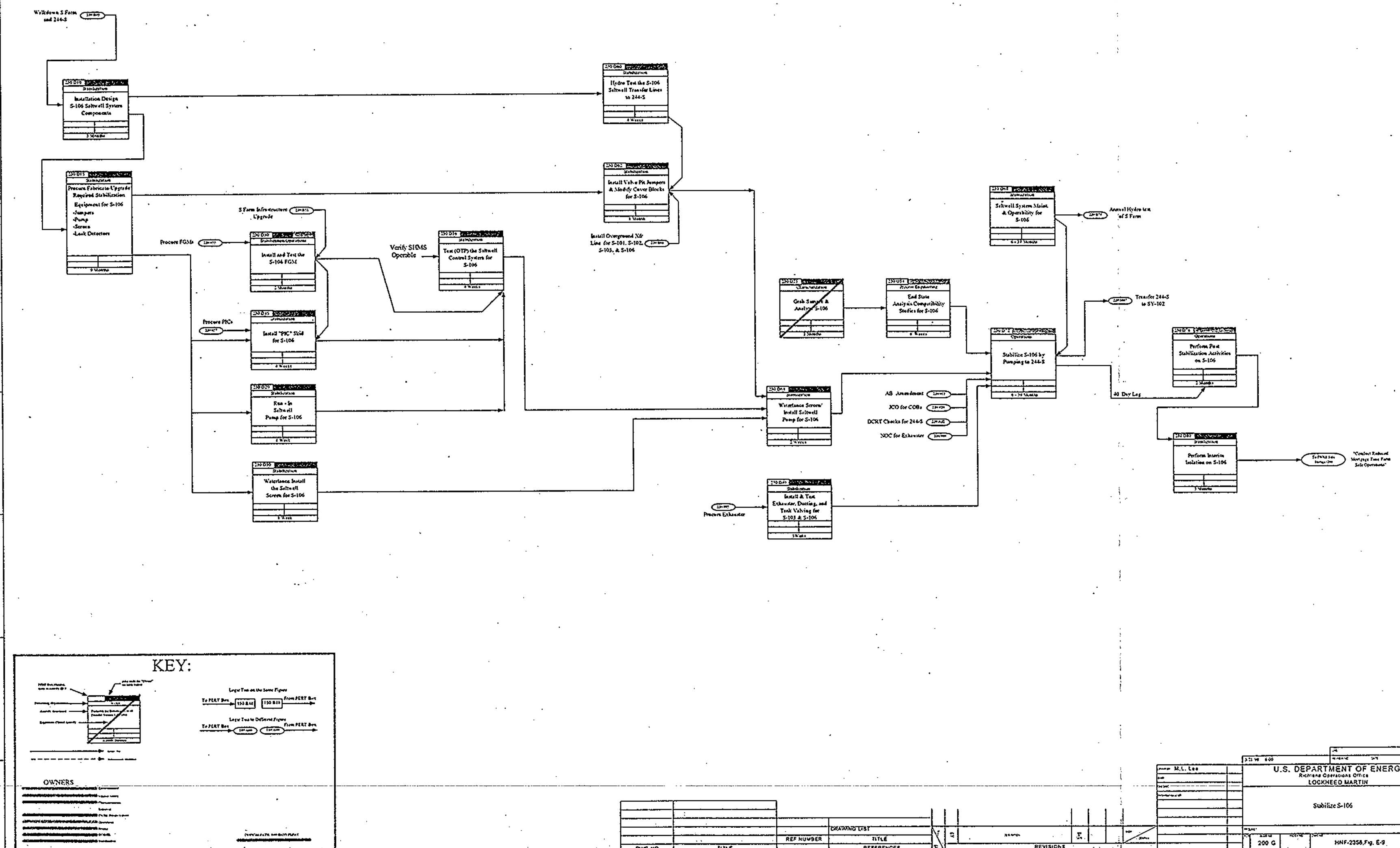


Stabilize S-106

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure



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Stabilize S-106

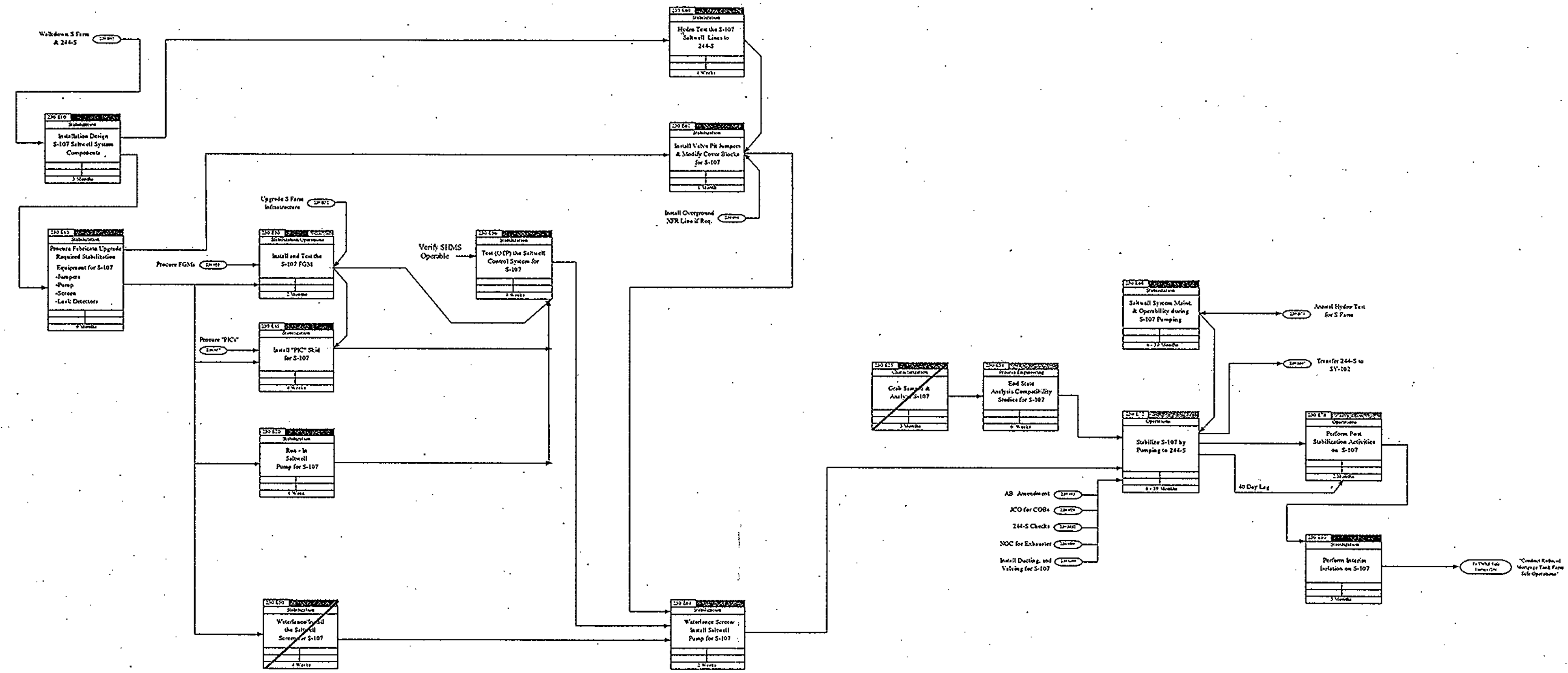
200 G | HNF-2358, Fig. E-9

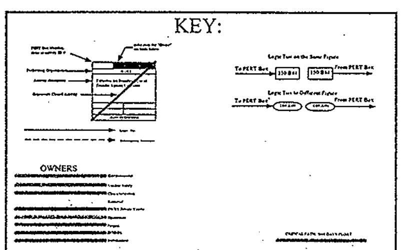
Stabilize S-107

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure





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Stabilize S-107

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200 G | HNF-2358, Fig. E-10

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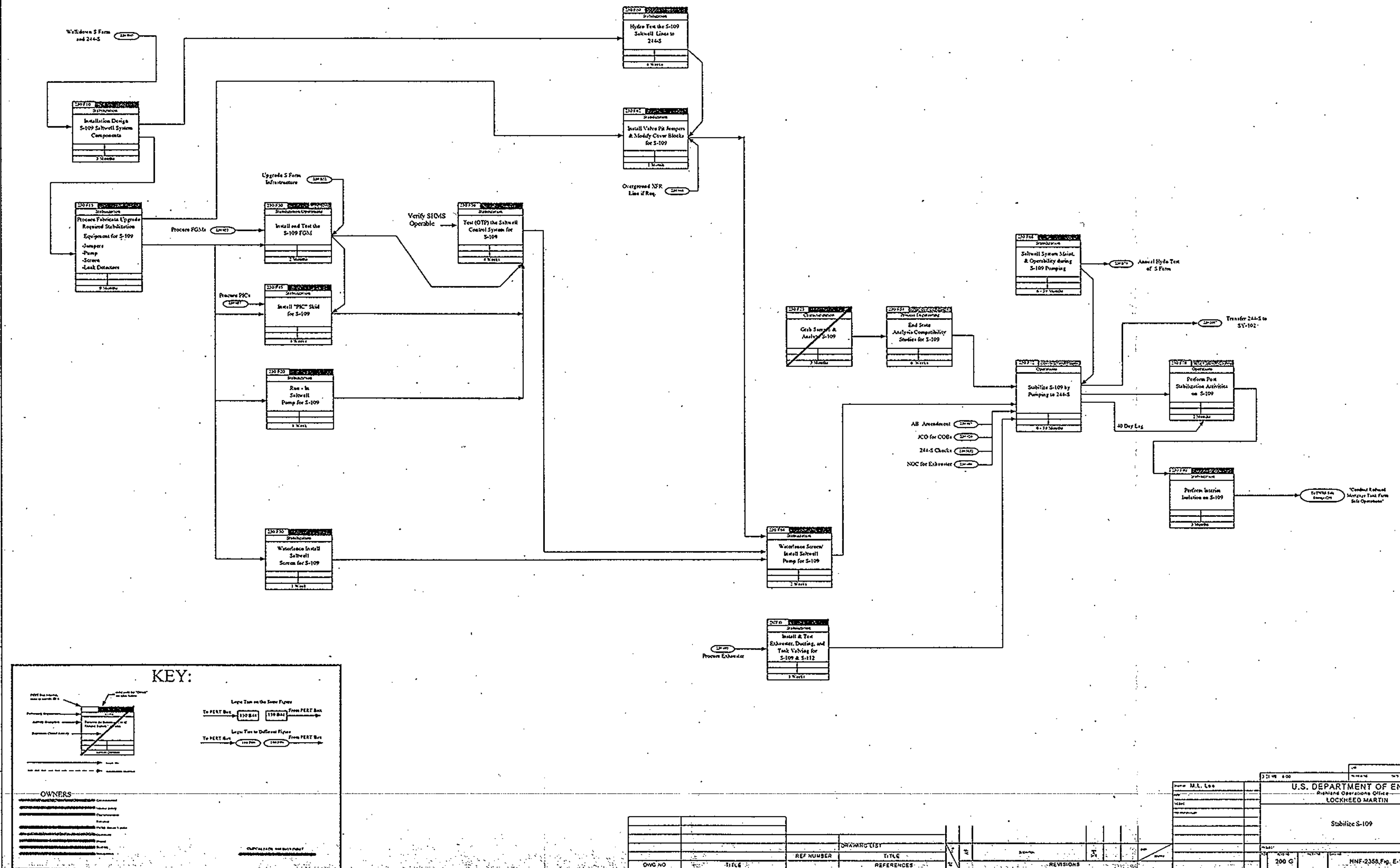
Stabilize S-109

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure



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Stabilize S-109

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HNF-2358,Fig. E-11

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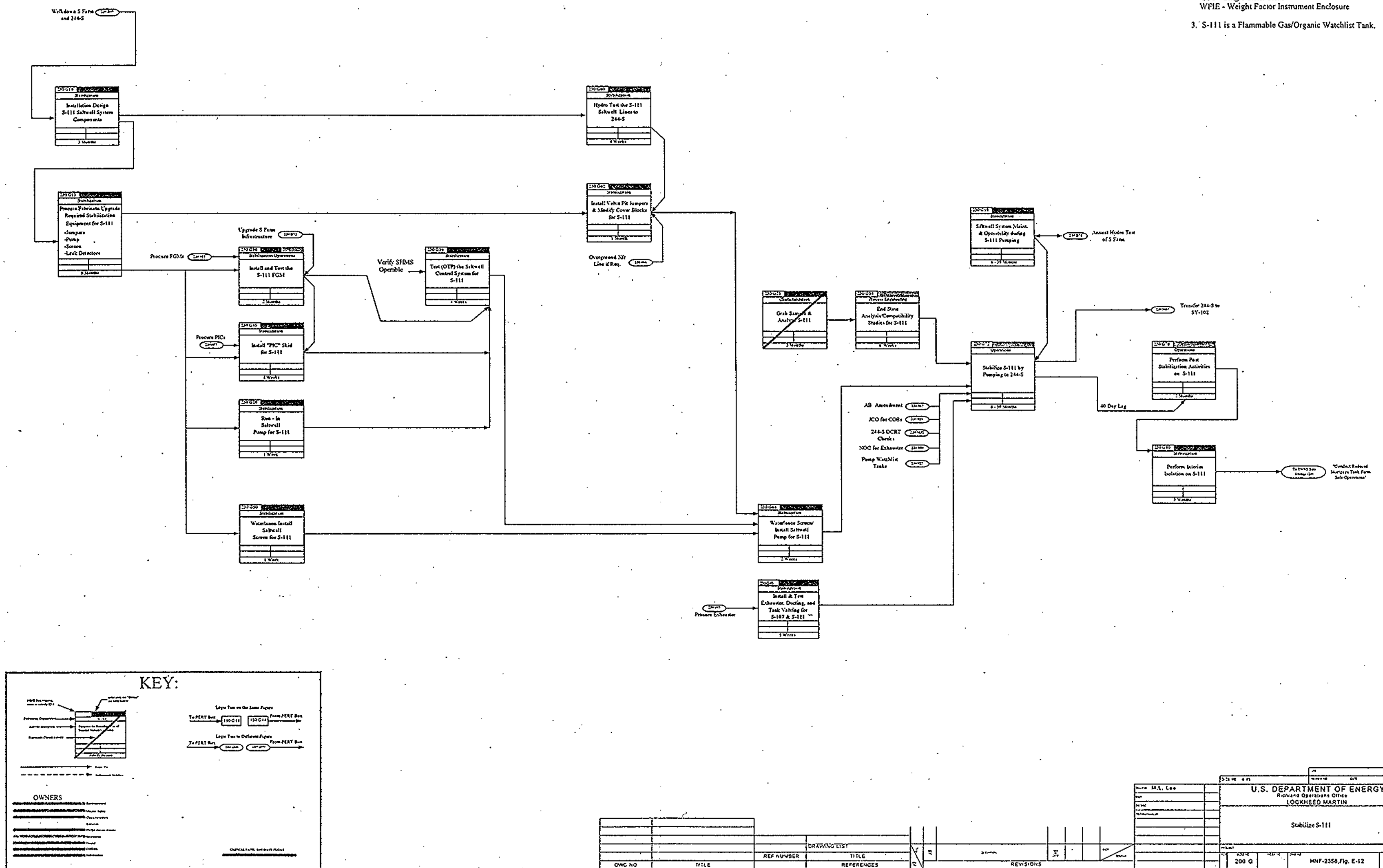
Stabilize S-111

NOTES:

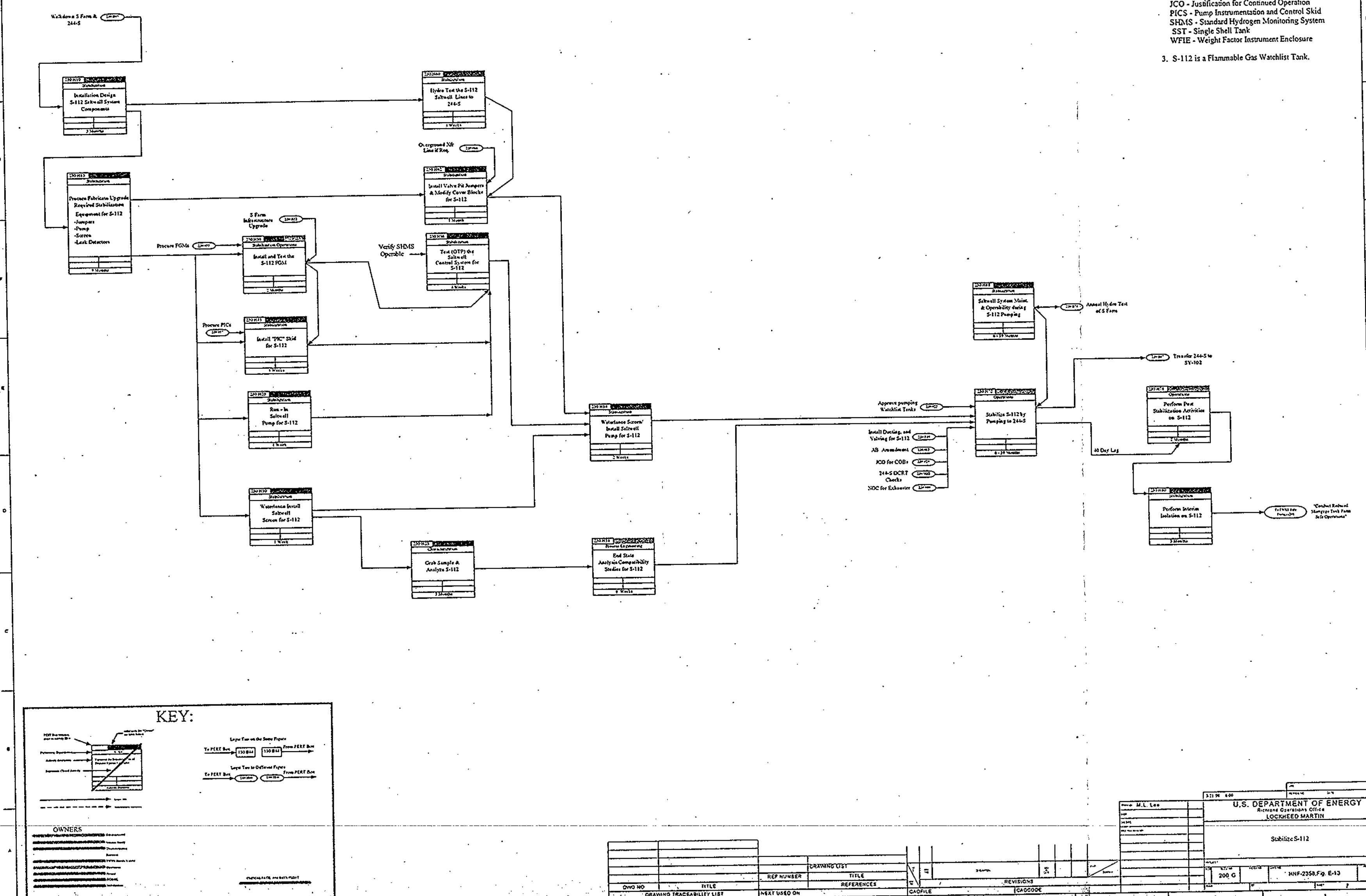
1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. S-111 is a Flammable Gas/Organic Watchlist Tank.



Stabilize S-112



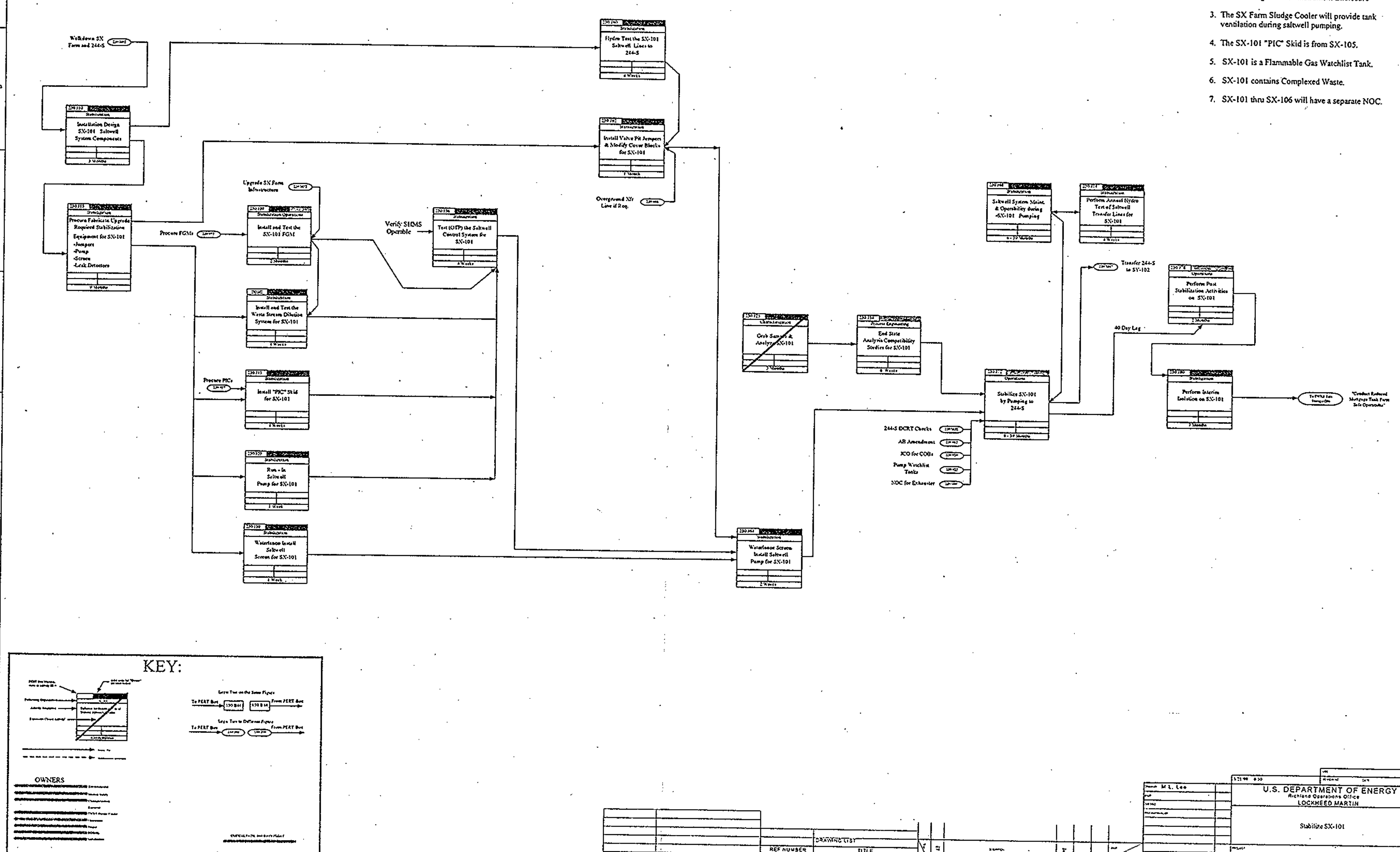
NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. S-112 is a Flammable Gas Watchlist Tank.

Stabilize SX-101



NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.
4. The SX-101 "PIC" Skid is from SX-105.
5. SX-101 is a Flammable Gas Watchlist Tank.
6. SX-101 contains Complexed Waste.
7. SX-101 thru SX-106 will have a separate NOC.

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Stabilize SX-101

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HNF-2358 Fig. E-14

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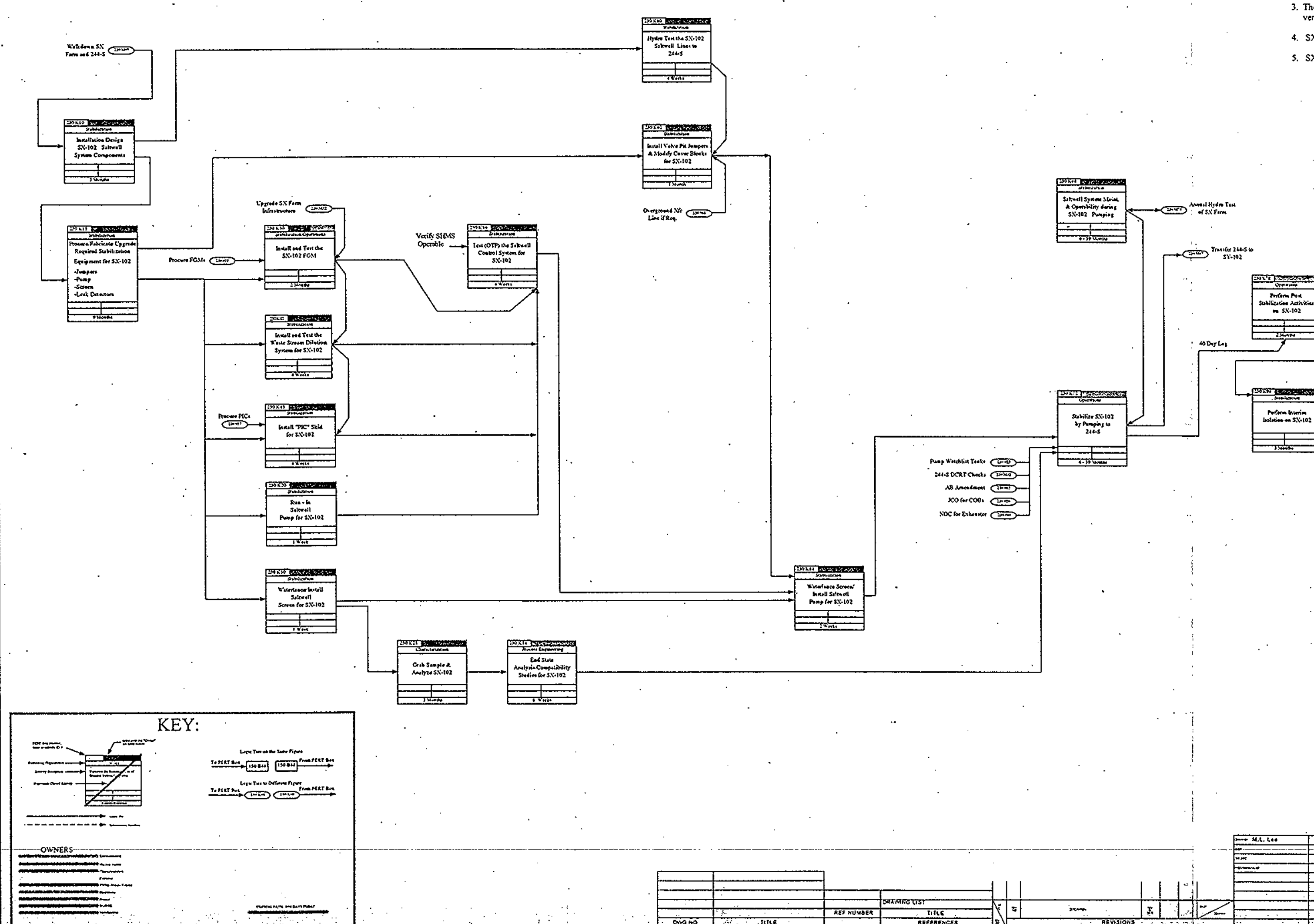
Stabilize SX-102

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.
4. SX-102 is a Flammable Gas Watchlist Tank.
5. SX-101 thru SX-106 will have a separate NOC.



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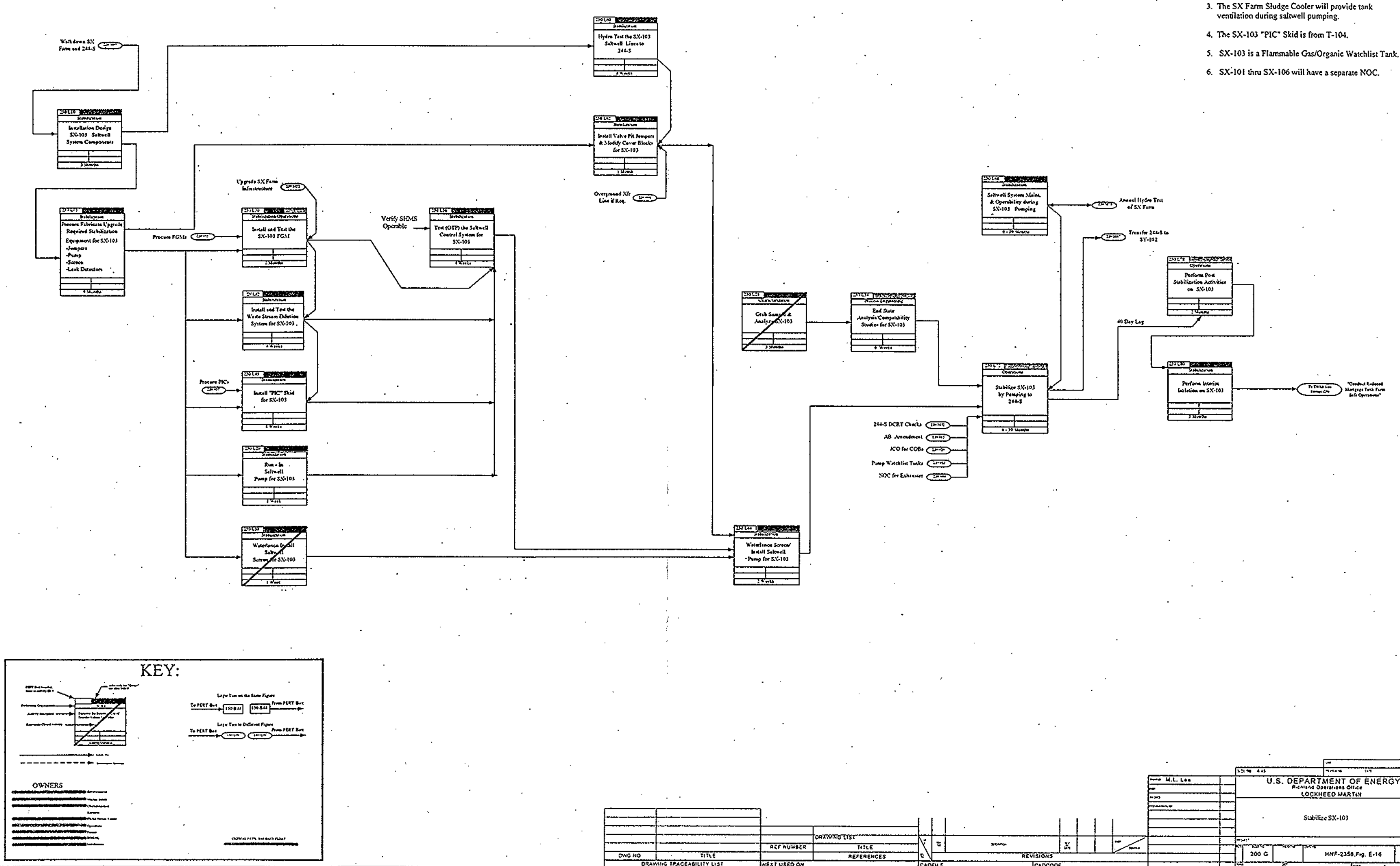
Stabilize SX-102

200 G | HNF-2358,Fig. E-15

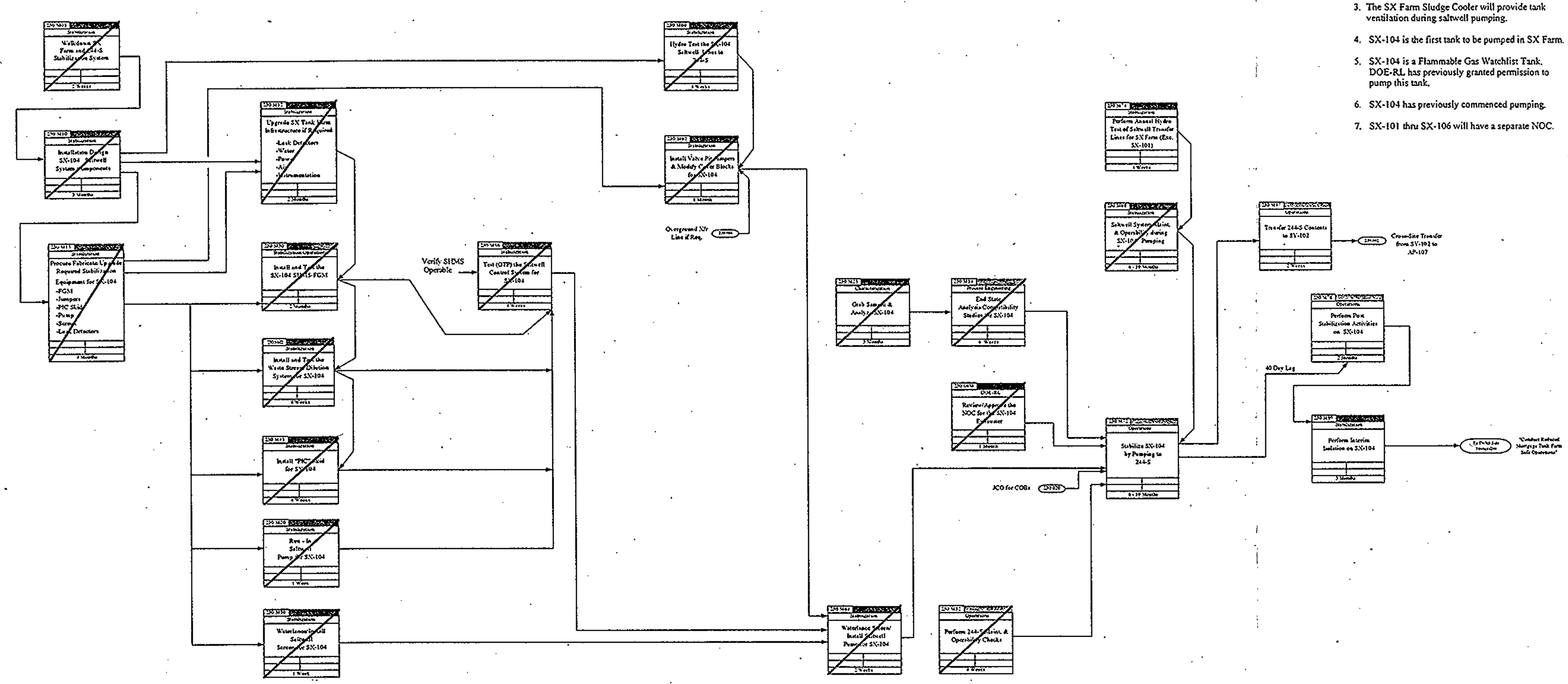
Stabilize SX-103

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.
4. The SX-103 "PIC" Skid is from T-104.
5. SX-103 is a Flammable Gas/Organic Watchlist Tank.
6. SX-101 thru SX-106 will have a separate NOC.



Stabilize SX-104



NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

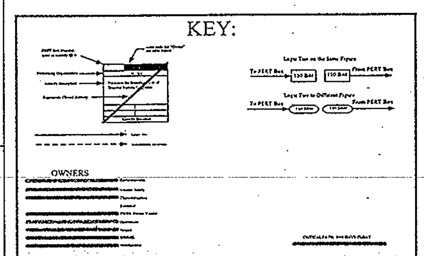
3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.

4. SX-104 is the first tank to be pumped in SX Farm.

5. SX-104 is a Flammable Gas Watchlist Tank. DOE-RL has previously granted permission to pump this tank.

6. SX-104 has previously commenced pumping.

7. SX-101 thru SX-106 will have a separate NOC.



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Stabilize SX-104

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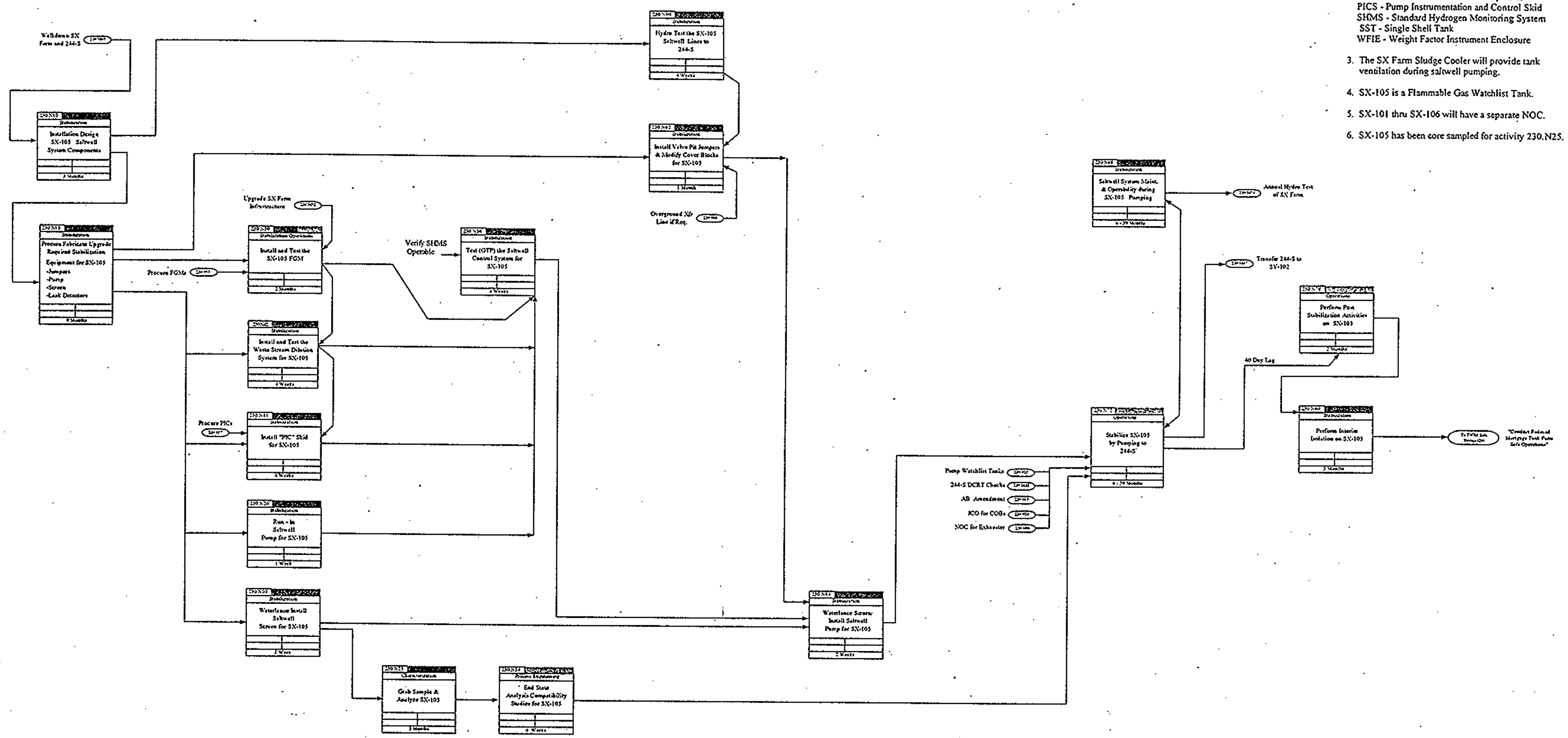
HNF-2358, Fig. E-17

Stabilize SX-105



NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

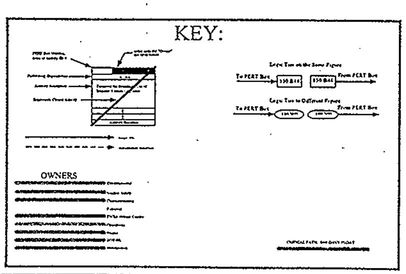
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.

4. SX-105 is a Flammable Gas Watchlist Tank.

5. SX-101 thru SX-106 will have a separate NOC.

6. SX-105 has been core sampled for activity 230.N25.



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Stabilize SX-105

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HNF-2358,Fig. E-18

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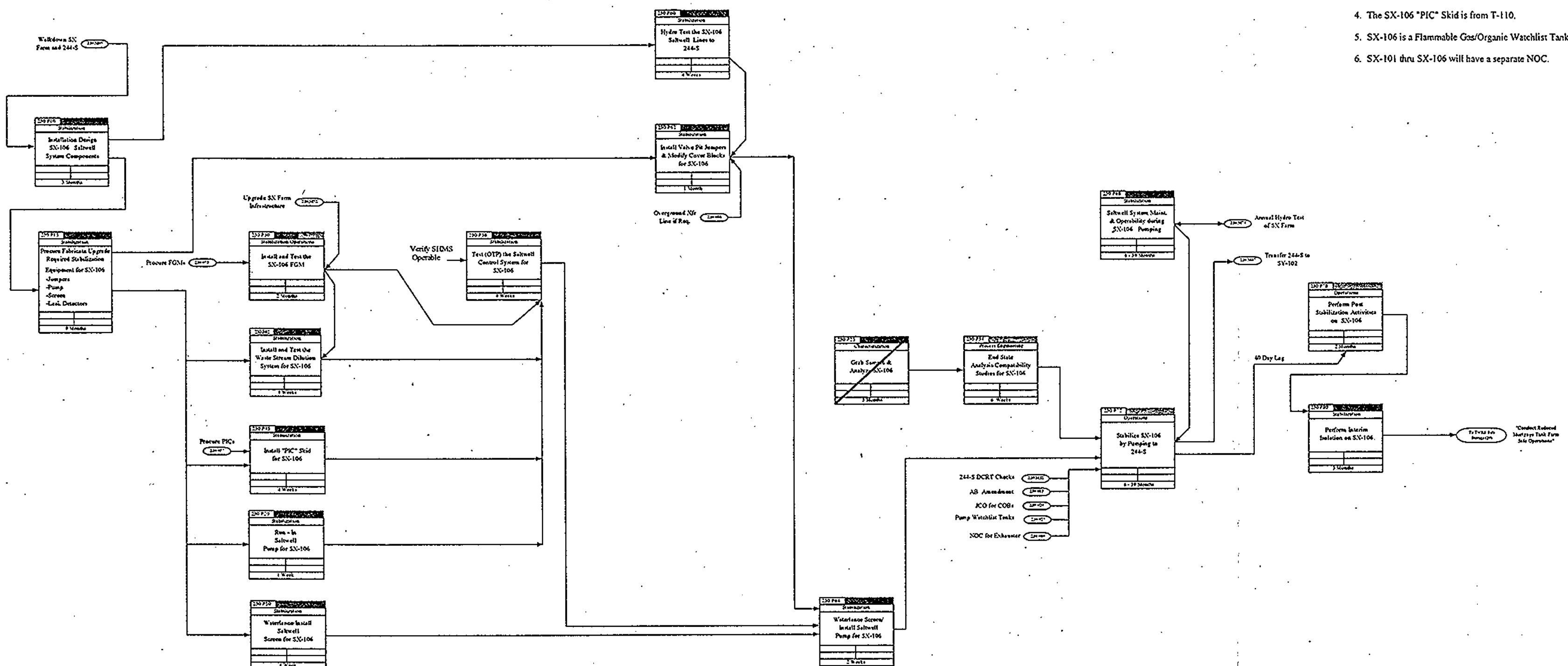
Stabilize SX-106



NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

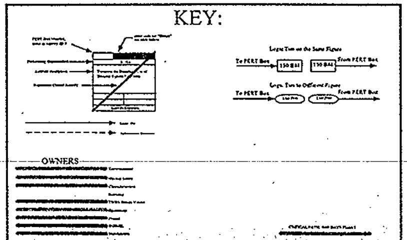
3. The SX Farm Sludge Cooler will provide tank ventilation during saltwell pumping.

4. The SX-106 "PIC" Skid is from T-110.

5. SX-106 is a Flammable Gas/Organic Watchlist Tank.

6. SX-101 thru SX-106 will have a separate NOC.

KEY:



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Stabilize SX-106

200 G | HNF-2358 Fig. E-19

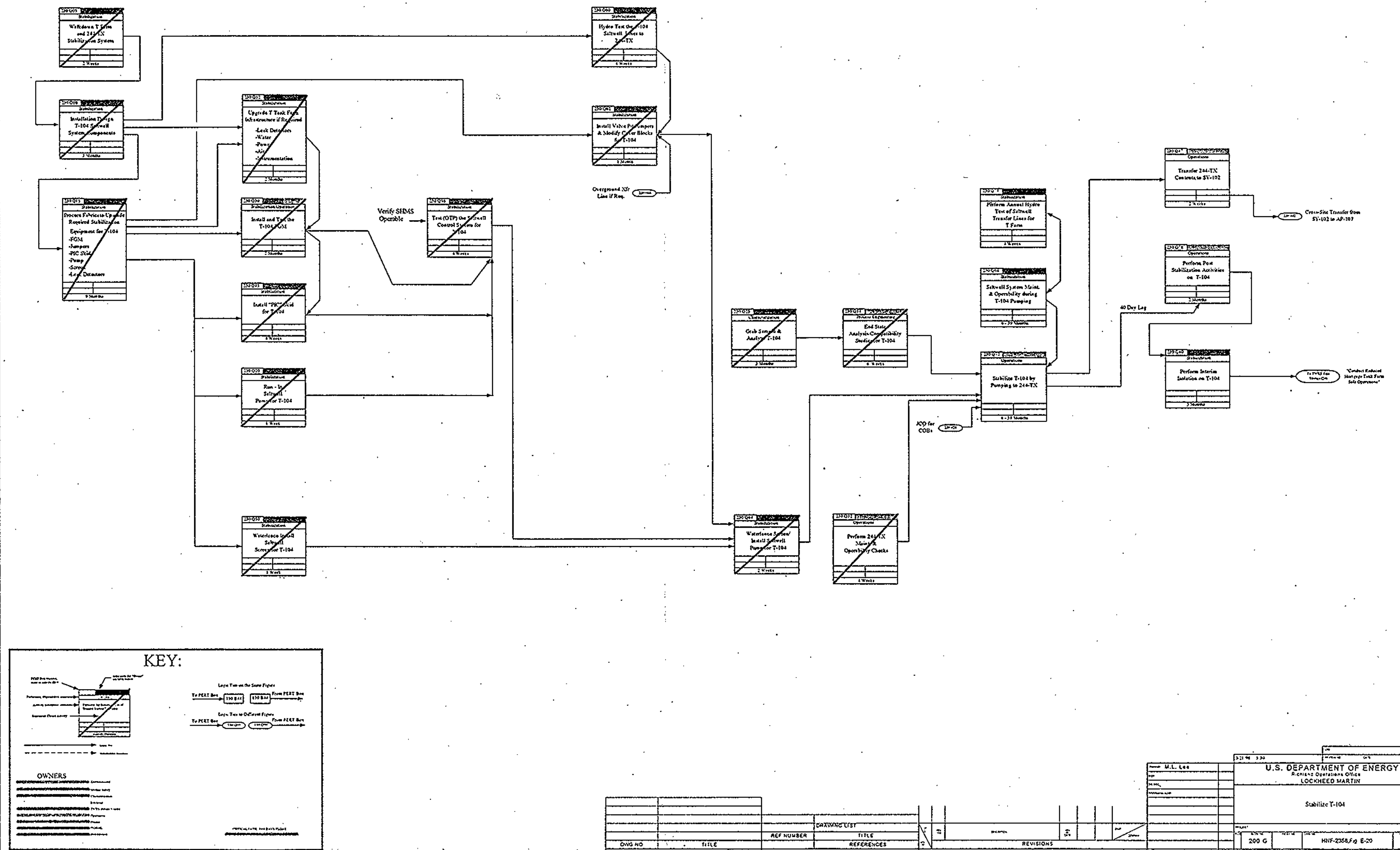
Stabilize T-104

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. Pumping of T-104 was previously commenced. T-104 will be the first tank to be pumped in T Farm.



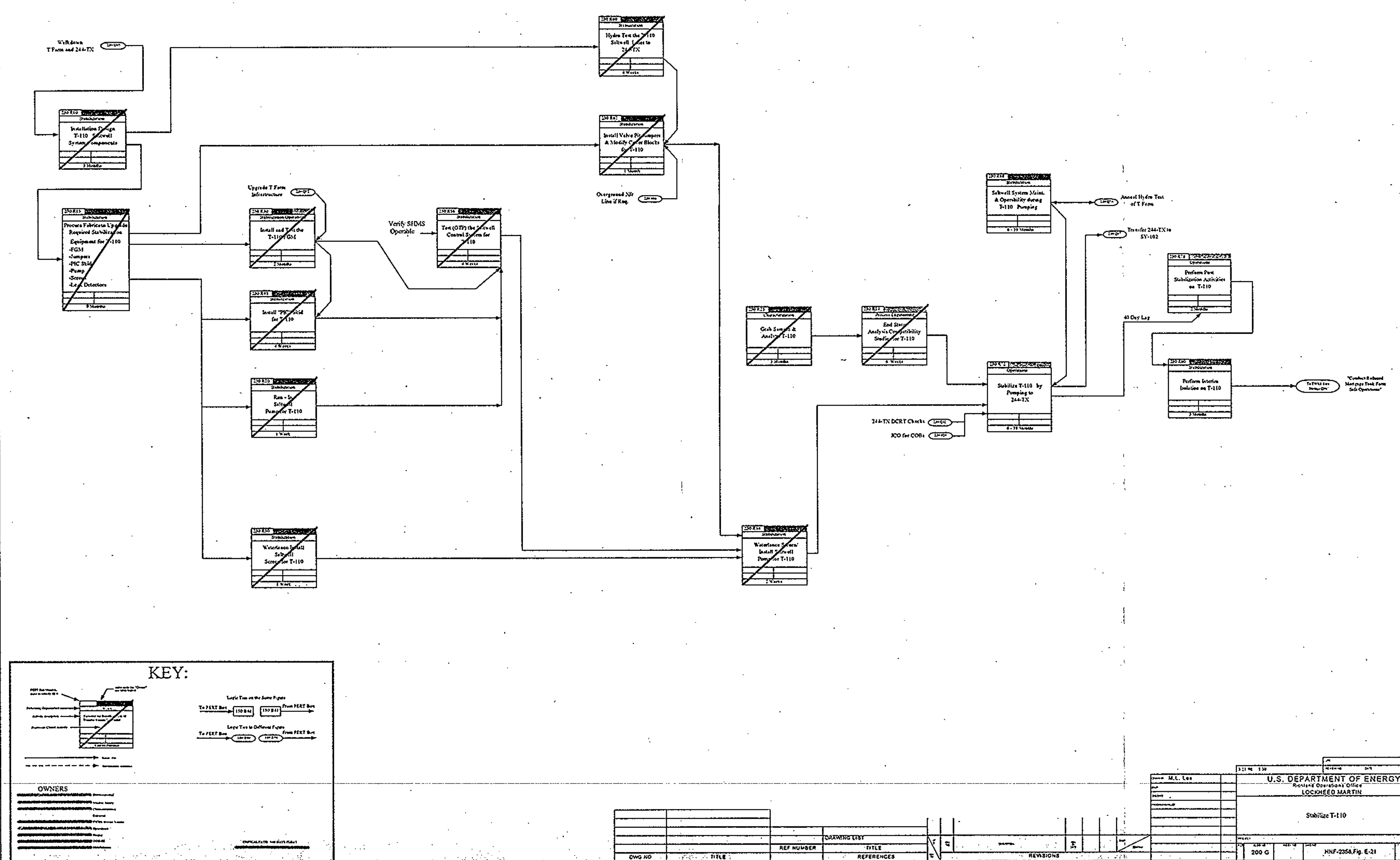
Stabilize T-110

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. T-110 has previously commenced pumping.



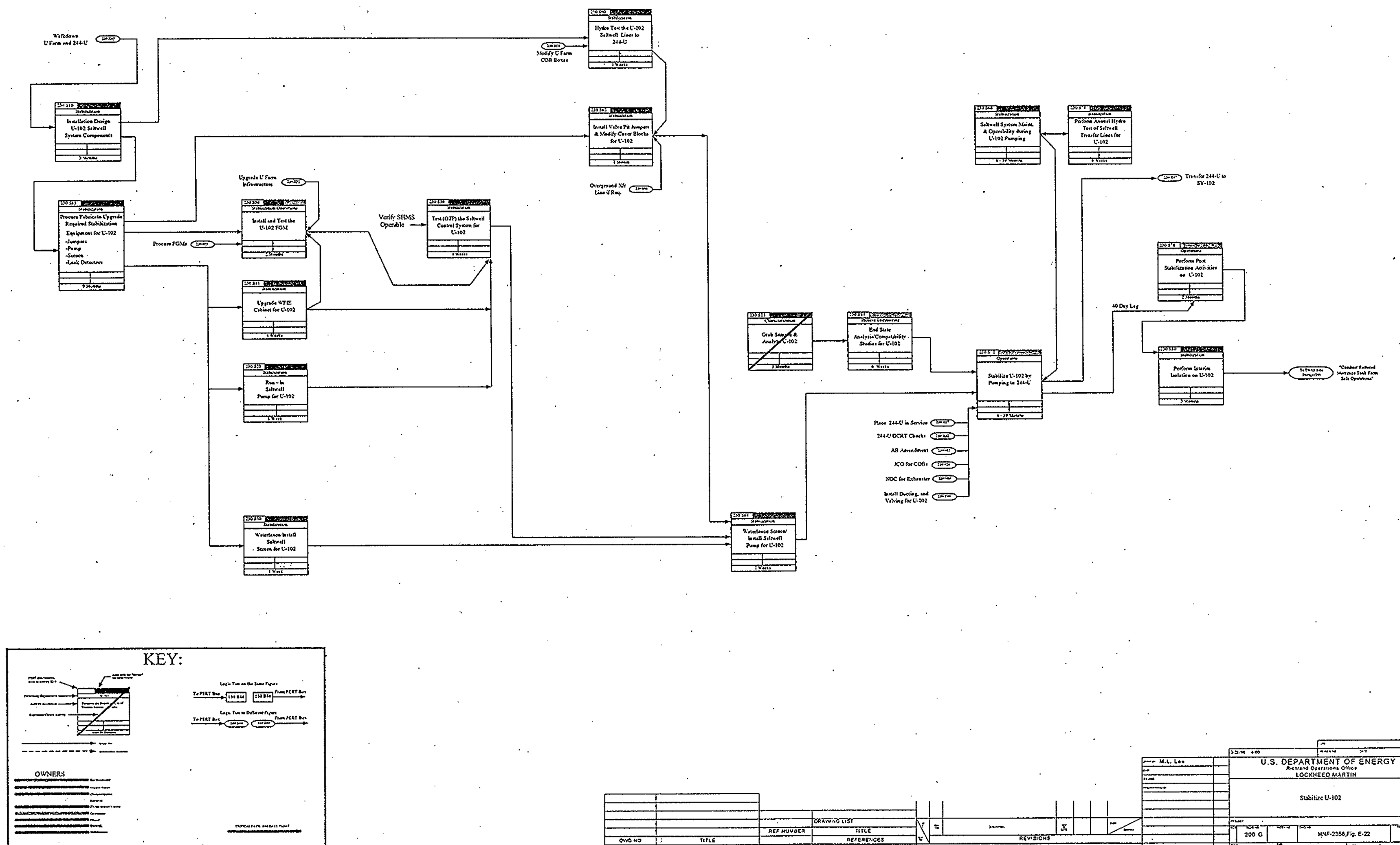
Stabilize U-102

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

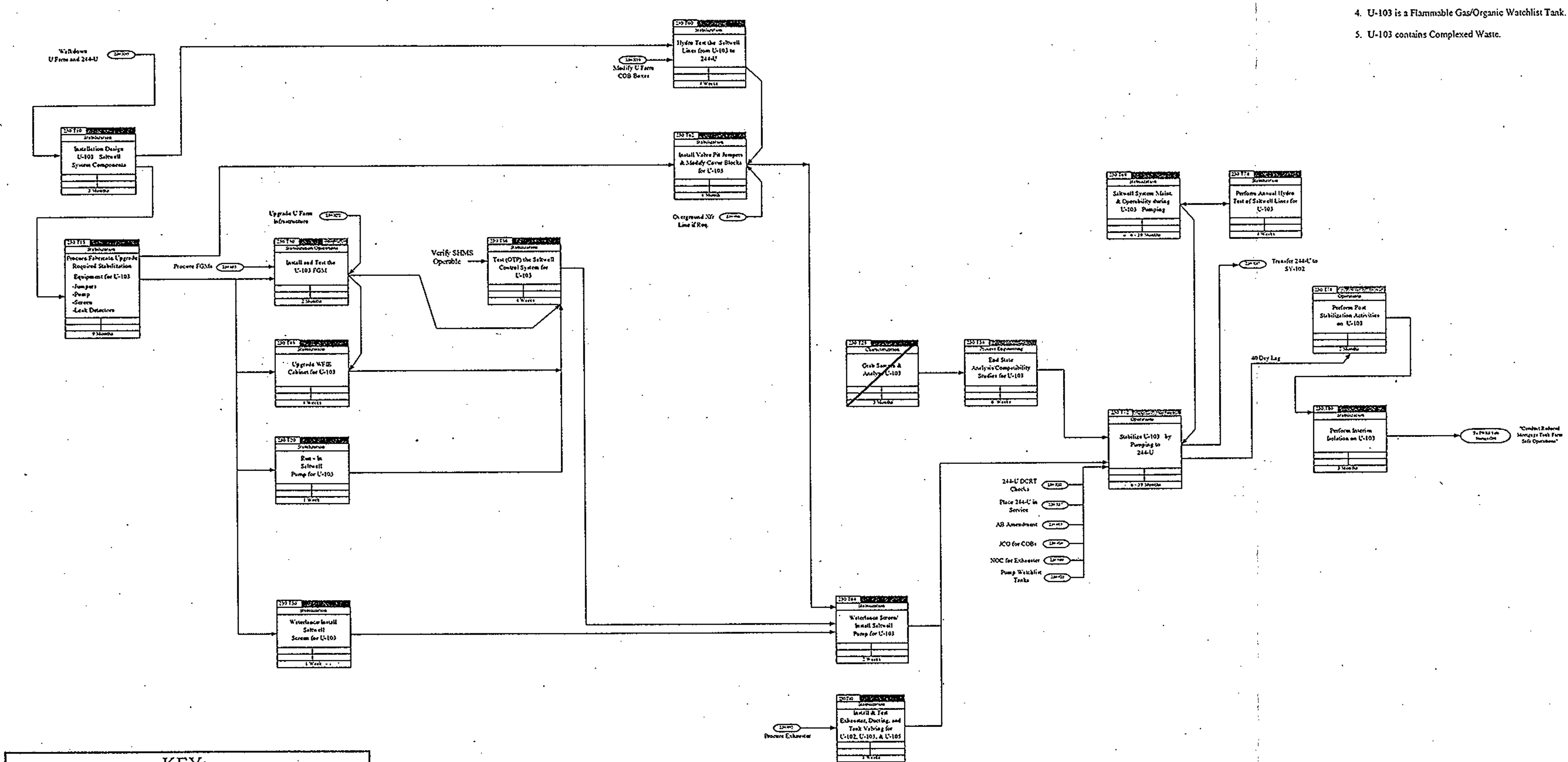
3. U-102 contains Complexed Waste.

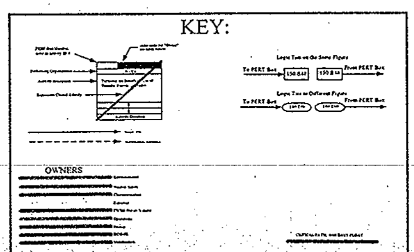


Stabilize U-103

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. The U-103 Exhauster is from BY-106.
4. U-103 is a Flammable Gas/Organic Watchlist Tank.
5. U-103 contains Complexed Waste.





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Stabilize U-103

200 G | HNF-2358, Fig. E-23

REVISIONS

Stabilize U-105

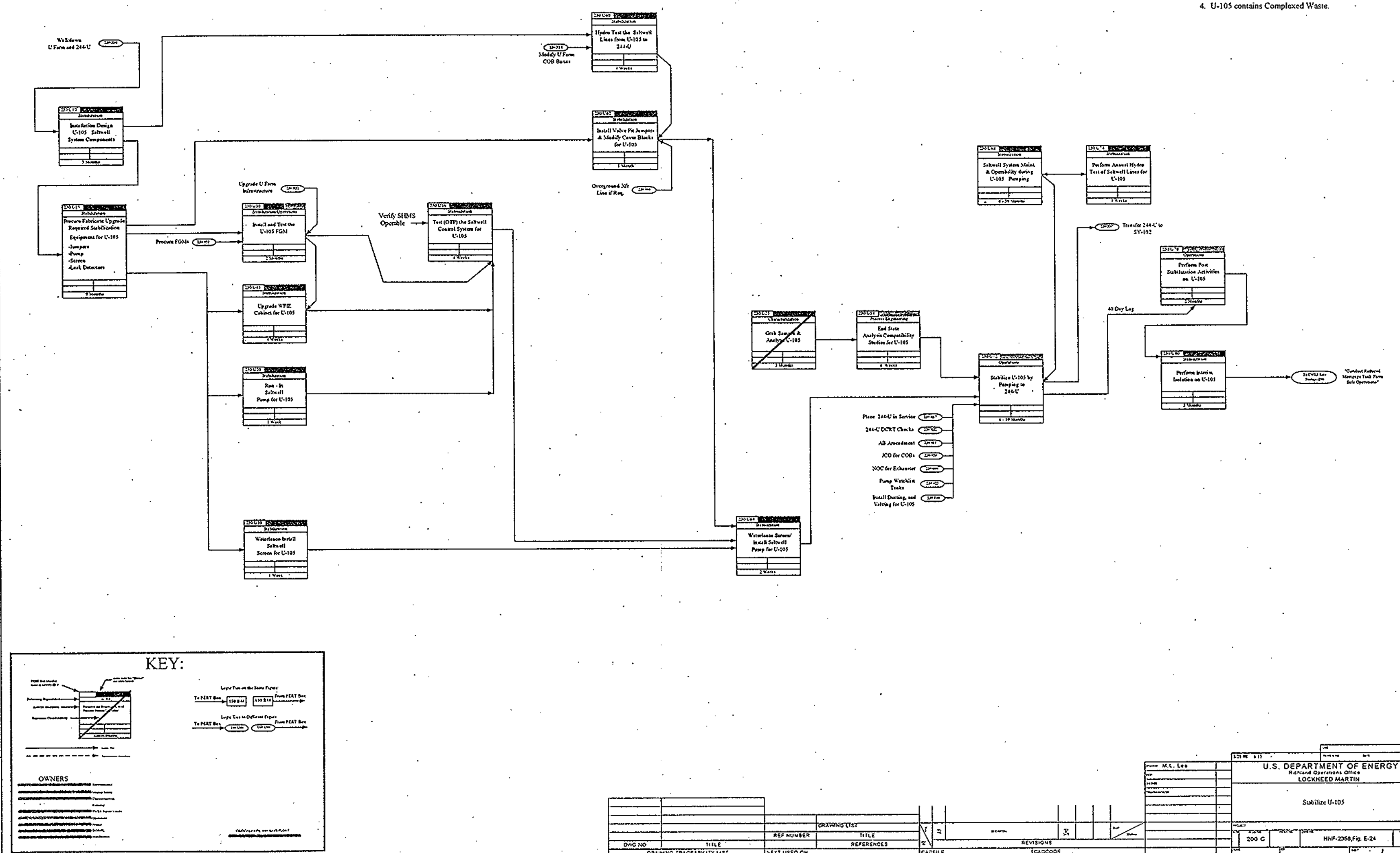
NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. U-105 is a Flammable Gas/Organic Watchlist Tank.

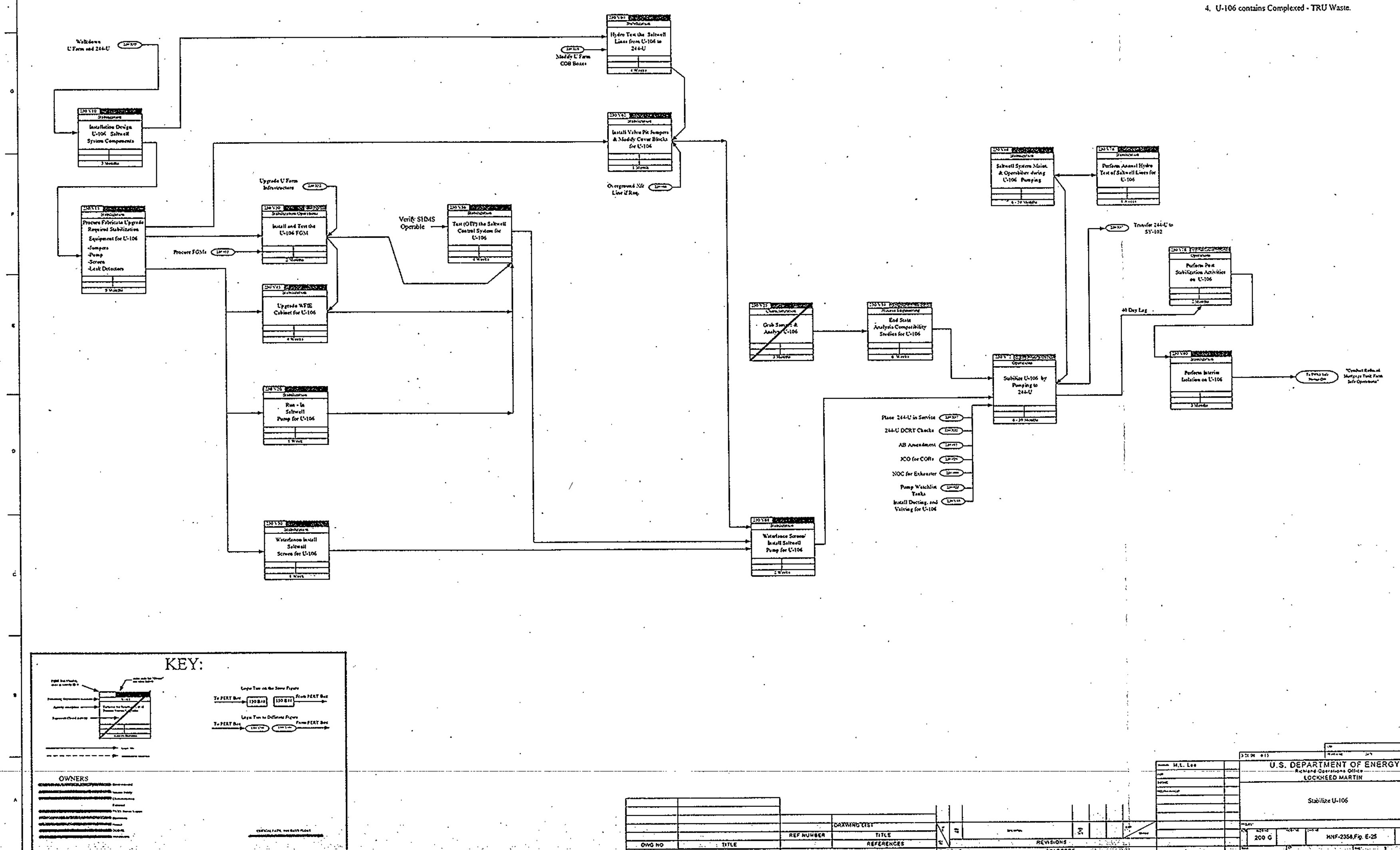
4. U-105 contains Complexed Waste.



Stabilize U-106

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. U-106 is an Organics Watchlist Tank.
4. U-106 contains Complexed - TRU Waste.



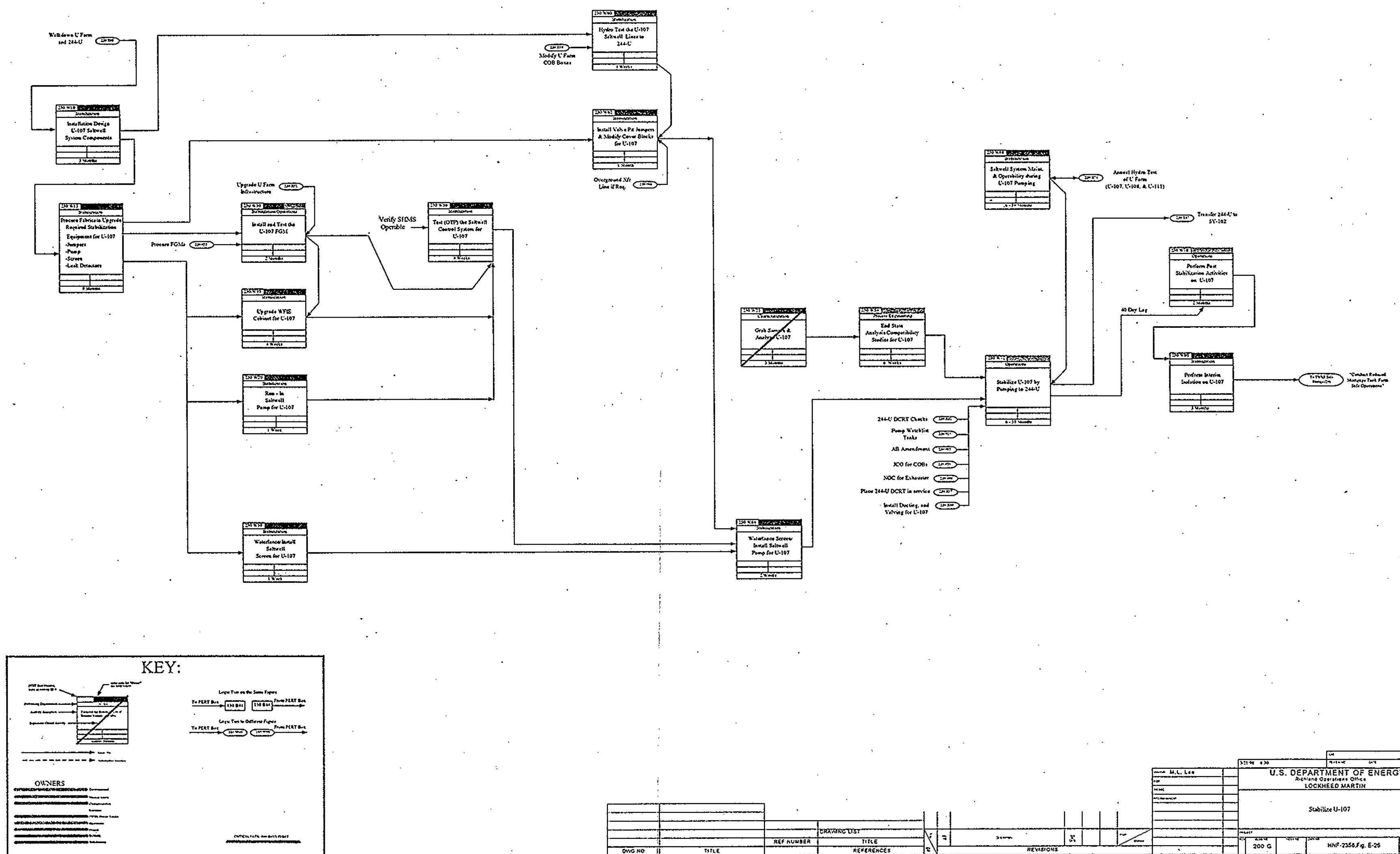
Stabilize U-107

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.

2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure

3. U-107 is a Flammable Gas/Organic Watchlist Tank.



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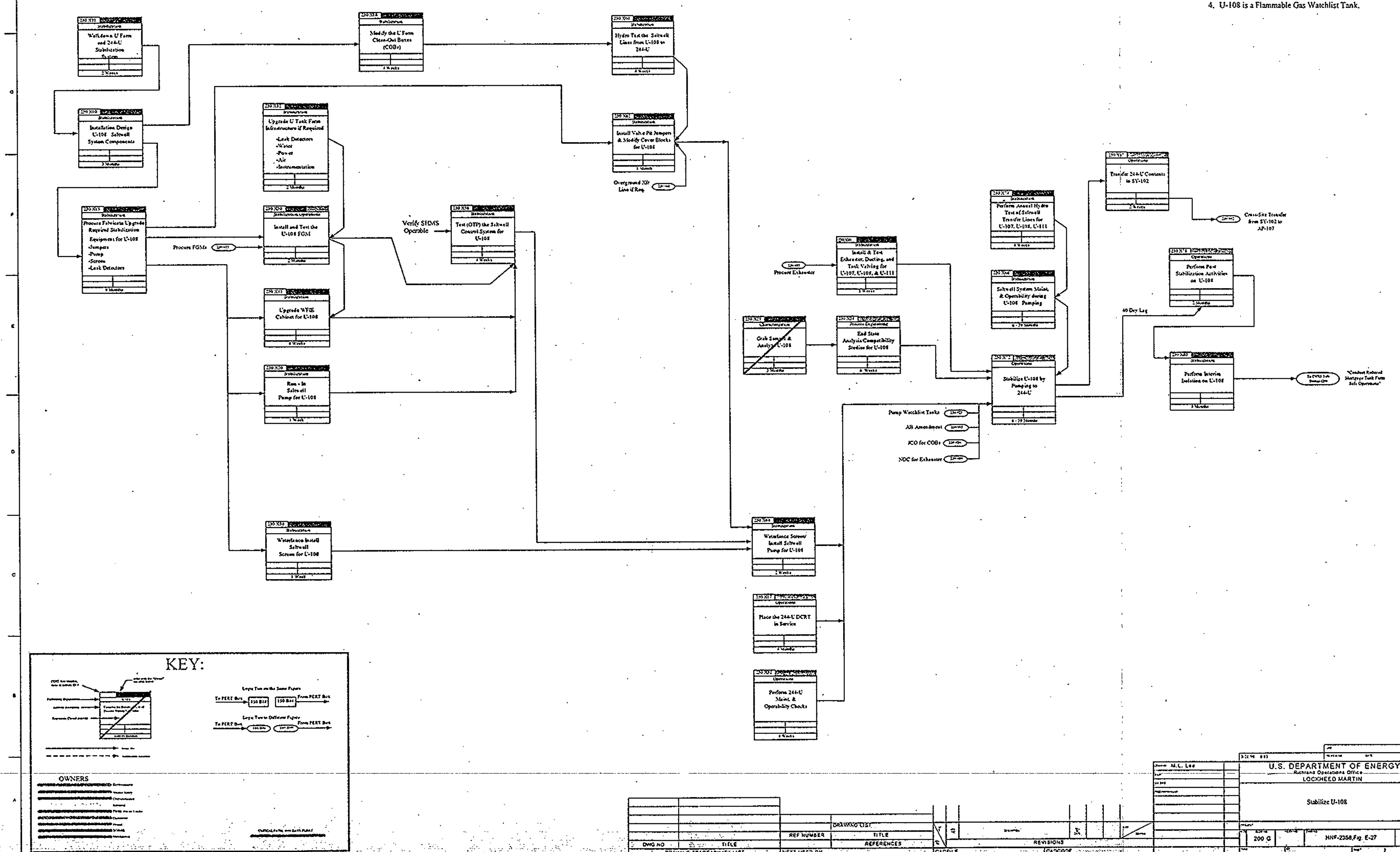
Stabilize U-107

200 G HNF-2358,Fig. E-26

Stabilize U-108

NOTES:

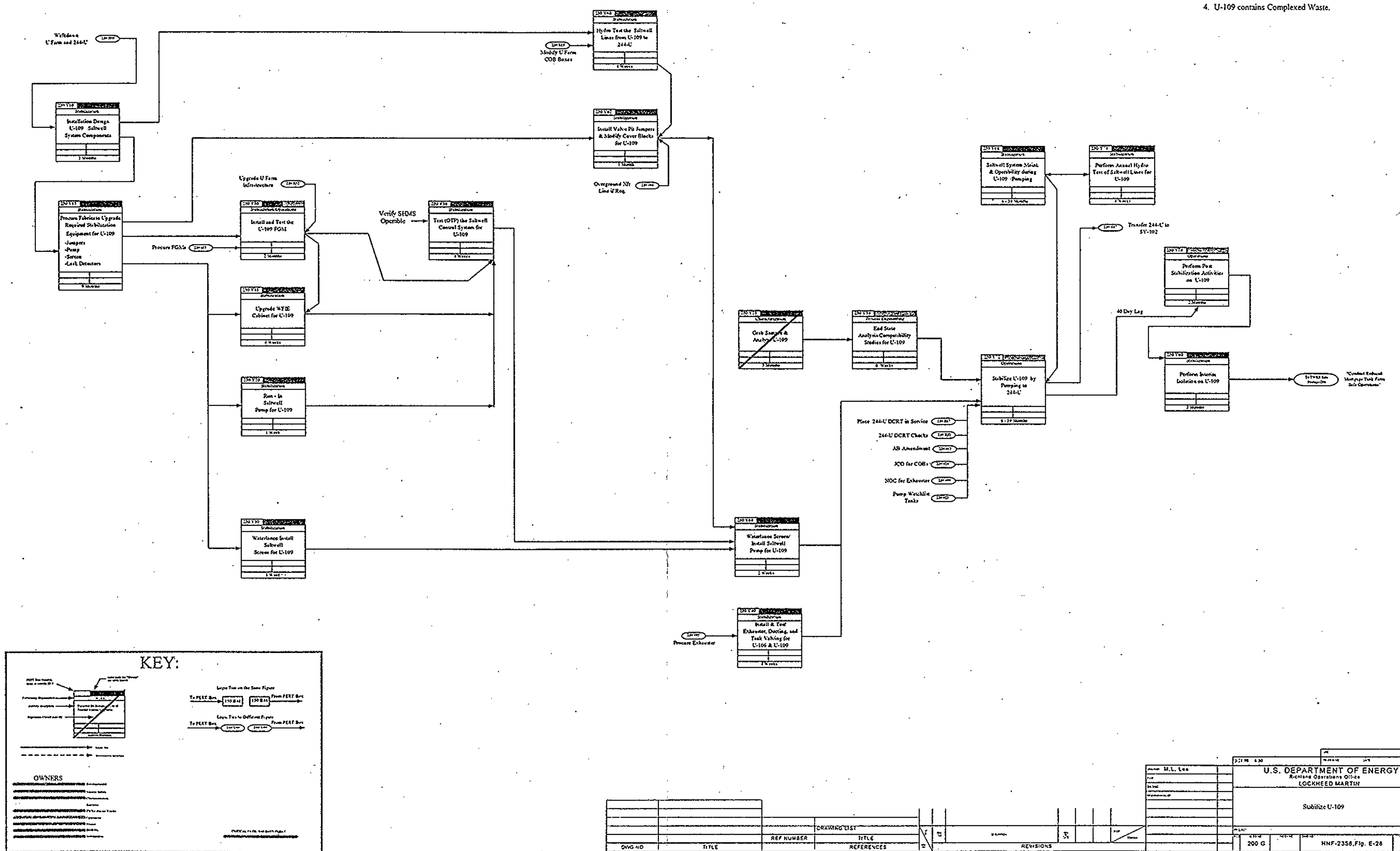
1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. U-108 is the first tank to be pumped in U Farm.
4. U-108 is a Flammable Gas Watchlist Tank.



Stabilize U-109

NOTES:

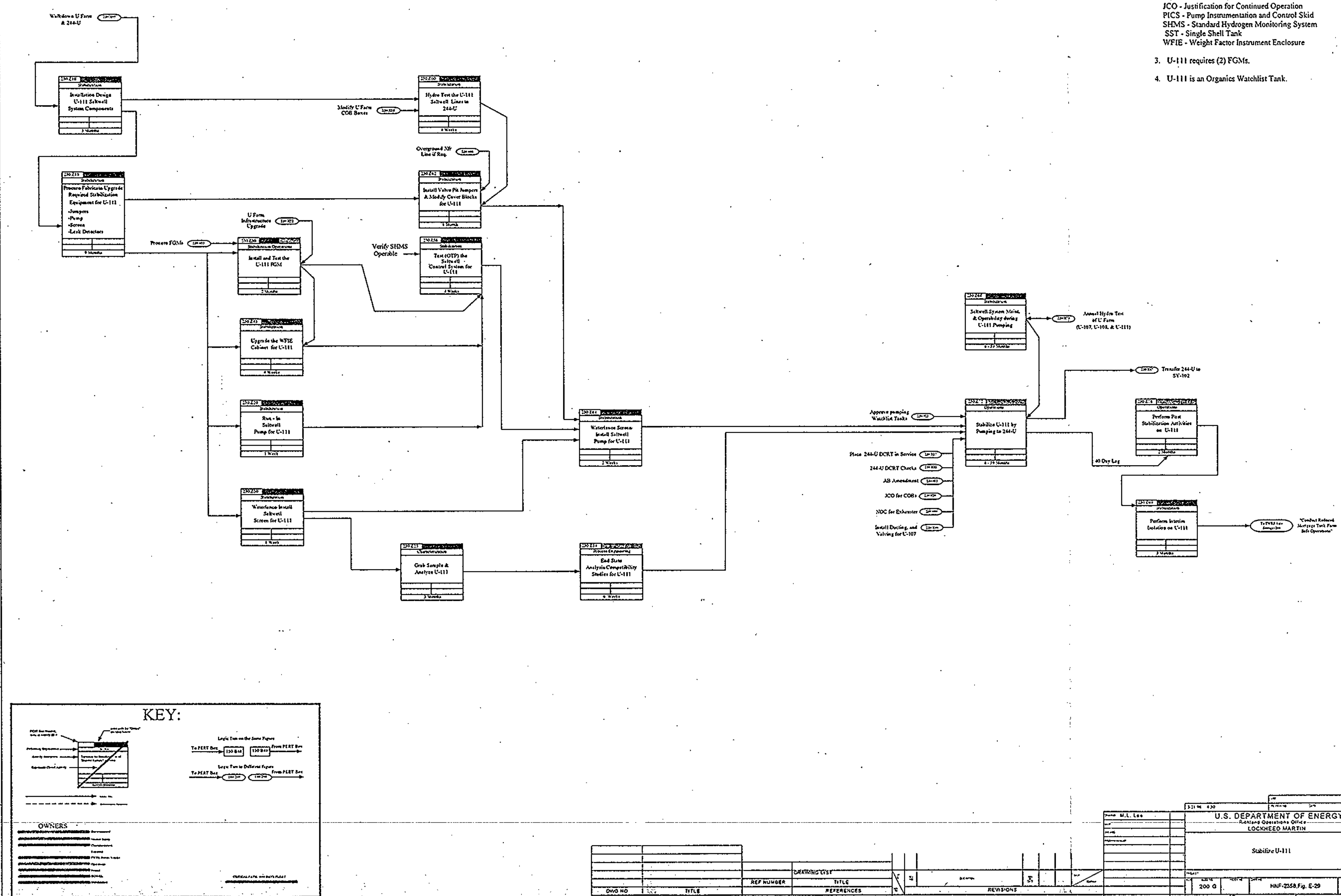
1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. U-109 is a Flammable Gas Watchlist Tank.
4. U-109 contains Complexed Waste.



Stabilize U-111

NOTES:

1. This logic is a summary representation of the program schedule. Durations shown are approximate and represent activity execution time. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. COB - Clean Out Box
   DCRT - Double Contained Receiver Tank
   DST - Double Shell Tank
   FGM - Flammable Gas Monitor
   JCO - Justification for Continued Operation
   PICS - Pump Instrumentation and Control Skid
   SHMS - Standard Hydrogen Monitoring System
   SST - Single Shell Tank
   WFIE - Weight Factor Instrument Enclosure
3. U-111 requires (2) FGMs.
4. U-111 is an Organics Watchlist Tank.



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