ENGINEERING CHANGE NOTICE

Page 1 of 2

1 EGN

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ECN

2. EGN Category (mark one) Supplemental ☐ Direct Revision ☒ Change EGN ☐ Temporary ☐ Standby ☐ Supersedeure ☐ Cancel/void ☐	3. Originator's Name, Organization, REIN, and Telephone No. DV Freeman/Mactec/G3-ZI/ 372-1633	4. USB Required? ☐ Yes ☒ No	5. Date May 8, 1998
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14a. Justification (mark one) Criteria Change ☒ Design Improvement ☐ Environmental ☐ Facility Identification ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐			
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15. Distribution (include name, REIN, and no. of copies) See attached list.			

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15. Design Verification Required ☐ Yes ☒ No	16. Cost Impact ENGINEERING Additional ☐ \$ Savings ☐ \$	N/A	CONSTRUCTION Additional ☐ \$ Savings ☐ \$	17. Schedule Impact (days) N/A Improvement ☐ Delay ☐
18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Slide 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.				
300000	☐	Security/Brown Analysis	☐	Task Collaboration Manual ☐
Functional Design Criteria	☐	Process/Design Report	☐	Health Physics Procedure ☐
Operating Specification	☐	Interface Control Drawing	☐	Space Multiple Unit Listing ☐
Criticality Specification	☐	Collaboration Procedure	☐	Test Procedures/Specification ☐
Conceptual Design Report	☐	Installation Procedures	☐	Component Index ☐
Equipment Spec.	☐	Maintenance Procedures	☐	ASME Coded Item ☐
Costs Spec.	☐	Engineering Procedures	☐	Hazard Factor Consideration ☐
Process/Spec Spec.	☐	Operating Instructions	☐	Computer Software ☐
Vendor Information	☐	Operating Procedures	☐	Blockby Class Schedule ☐
OM Manual	☐	Operational Safety Requirements	☐	ICNS Procedures ☐
FEAR/SAR	☐	NEED Drawing	☐	Process Control Manual/Plan ☐
Safety Equipment List	☐	Oil Arrangement Drawing	☐	Process Flow Chart ☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition ☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	Tender File ☐
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Other			Other	
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Author's Mgr.: DI Allen <i>[Signature]</i>		5/8/98		
			DEPARTMENT OF ENERGY	
			Signature or a Control Number that tracks the Approval Signature	
			ADDITIONAL	

Single-Shell Tank Interim Stabilization Project Plan

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U.S. Department of Energy Contract DE-AC05-96RL13200

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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; organizations; structure, roles, responsibilities, and interfaces; and operational methods. This plan serves as the project executional baseline.

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Single-Shell Tank Interim Stabilization Project Plan

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ME Ross

Dr. Allen

RS 1

Replaces Rev. 0 and establishes fourth case as baseline scenario, per ECH-54B127.

WE Read!

~~BE Allen~~

Single-Shell Tank Interim Stabilization Project Plan

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Approved by:

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5/8/98
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EXECUTIVE SUMMARY

Solid and liquid radioactive waste continues to be stored in 149 single-shell tanks (SSTs) 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. (FDHI) directed Lockheed Martin Hanford Corporation 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 1998a), 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

EXECUTIVE SUMMARY

updated cost and schedule baseline for Case 1. Two additional funding cases, with funding constraints, were generated by constraining activities on the Case 1 schedule.

Revision 0 of this Project Plan was transmitted by FDH to DOE, Richland Operations Office (RL) on March 31, 1998. Subsequent discussions indicated that none of the three cases met the needs of the program. The near term funding requirements of Case 1 were not deemed to be achievable. Cases 2 and 3 were unacceptably long, with neither being completed prior to 2010.

Based on feedback from these discussions and documented in Allen 1998, Sieracki 1998b, and Umek 1998, the Project Hanford Management Contract developed Case 4, hereafter referred to as the Base Case. Several conservative assumptions were relaxed, and a more realistic funding profile was suggested. This case was transmitted to RL on April 8, 1998.

The major changes are:

- Approval to co-mingle all liquid waste types (noncomplexed, complexed, and complexed transuranic)
- Pump C-103 with the organic layer in place.

Funding comparisons and profiles are shown in Tables ES-1 and ES-2.

Table ES-1. Funding Comparisons.

Case	Total Project Cost	Project Completion Date
Case 1	\$126 million	September 2003
Base Case (Case 4)	\$119 million	September 2004

Table ES-2. Funding Profiles (\$ in millions).

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Case 1	20.5	32.8	26.9	27.3	12.7	5.7	—
Base Case (Case 4)	13.7	16.7	18.3	19.0	20.3	18.4	12.7
MYWP	12.3	14.4	11.0	12.1	8.1	4.4	—

FY = fiscal year.

MYWP = Multi-Year Work Plan.

EXECUTIVE SUMMARY

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.

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.

This project plan describes the organization that is necessary to execute the Base Case 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.

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LIST OF TERMS

ALARA	as low as reasonably achievable
BIO	Basis for Interim Operation
CAA	cost account authorization
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)
ES&H	Environmental, Safety, and Health
ESH&QA	Environmental, Safety, and Health, and Quality Assurance
FDH	Fluor Daniel Hanford, Inc.
FG	facility group
FTE	full-time equivalent
FY	fiscal year
HANDI	Hanford Data Integration
IS	Interim Stabilization
ISMS	Integrated Safety Management System
LMHC	Lockheed Martin Hanford Corporation
MYWP	Multi-Year Work Plan
NOC	notice of construction
OWVP	Operations Waste Volume Projection
P3	Primavera Project Planner
PHMC	Project Hanford Management Contract
QAPP	Quality Assurance Project Plan
RL	U.S. Department of Energy, Richland Operations Office
SER	safety evaluation report
SHMS	Standard Hydrogen Monitoring System
SST	single-shell tank
TENS	TWRS Engineering and Nuclear Safety
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TRU	transuranic
TWRS	Tank Waste Remediation System
WBS	Work Breakdown Structure

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 Shuicing 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.

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 U.S. Department of Energy's (DOE's) Change Control Form #M-41-97-01" (Fitzsimmons 1998), the Washington State Department of Ecology (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 1998a), the DOE reaffirmed the direction that FDH and LMHC develop an aggressive Single-Shell Tank (SST) Interim Stabilization (IS) completion project plan to support a finalized *Hanford Federal Facility Agreement and Consent Order* (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.

Revision 0 of this Project Plan was transmitted by FDH to DOE, Richland Operations Office (RL) on March 31, 1998. Subsequent discussions indicated that none of the three cases met the needs of the program. The near term funding requirements of Case 1 were not deemed to be achievable. Cases 2 and 3 were unacceptably long, with neither being completed prior to 2010.

Based on feedback from these discussions and documented in Allen 1998, Sieracki 1998b, and Umek 1998, the Project Hanford Management Contract (PHMC) developed Case 4, hereafter referred to as the Base Case. Several conservative assumptions were relaxed, and a more realistic funding profile was suggested. This case was transmitted to RL on April 8, 1998.

The major changes are:

- Approval to co-mingle all liquid waste type (noncomplexed, complexed, and complexed transuranic (TRU))
- Pump C-103 with the organic layer in place.

Funding comparisons and profiles are shown in Tables 1-1 and 1-2.

Table 1-1. Funding Comparisons.

Case	Total Project Cost	Project Completion Date
Case 1	\$126 million	September 2003
Base Case (Case 4)	\$119 million	September 2004

Table 1-2. Funding Profiles (\$ in millions).

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MYWP	12.3	14.4	11.0	12.1	8.1	4.4	—

FY = fiscal year.

MYWP = Multi-Year Work Plan.

This project plan establishes the management framework for conducting an aggressive SST IS/Isolation program. The LMHC used a plan-development process modeled after the Tank Waste Remediation System (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 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.

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 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. This Project Plan will complete SST IS and isolation in September 2004.

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. The other SST, Tank C-106, will be stabilized by another project.

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.
- **Project Priority** - Completion of this project will require continuous, focused effort and appropriate and stable funding.
- **SST Tank A-101** - Pumping of SST Tank A-101 will require an amendment to the current Authorization Basis with 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.

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

2.4.1 Programmatic Interfaces

- **RL - RL** 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 *Tank Waste Remediation Fiscal Year 1998 Multi-Year Work Plan (MYWP)* (LMHC 1997a) and the *Operations Waste Volume Projection (OWVP)* (Strode and Boyles 1997) identify seven evaporator campaigns to be performed during the years 1999 through 2002. Approximately 2.16×10^7 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.
- **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 interim stabilization of Tank C-103 without removal of the organic layer. Removal of the organic layer is independent of the closure of the organic unreviewed safety question. Safety Issue Resolution will also evaluate flammable gas evolution during IS so the appropriateness of flammable gas controls can be reviewed.
- **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.

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

Tank Number	Supernatant Volume (L)	Pumpable Liquid Remaining (L)	Solids Vol (L)	Sludge Vol (L)	Total Curies in Tank ^a (decay date)	Co-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 (Hanson) 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. Trapped liquid layer treated as supernatant Floating crust-like layer treated as solids Calculation method A used
AX-101	690,000 ¹	1,570,000 ^{2,3}	2,080,000	0 (Hanson) 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 exclusion. Analysis in progress. No DL observed in top 10-11 segments. Trapped liquid layer treated as supernatant Floating crust-like layer treated as solids 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	Co-137 bound on grab. Tc-99, 86 percent soluble. Calculation method C TCR Data
BY-106	0	902,000 ¹	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	Hanson, November 30, 1997 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	Volumes are determined from core sample recoveries which indicated higher sludge levels than reported by Hanson. Calculation Method B
WEST										
S-101	45,000 ¹	409,000 ²	647,000 ¹	924,000 ¹	1,840,000 1/1/94	223,000 1/1/94	229 1/1/94	433,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method C
S-102	0 ¹	875,000 ²	2,063,000 ²	15,100 ¹	1,900,000 1/1/94	354,000 1/1/94	244 1/1/94	689,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method D
S-103	64,000 ¹	326,000 ²	837,000 ¹	37,800 ¹	680,000 1/1/94	136,000 1/1/94	260 1/1/94	303,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method D
S-106	201,000 ²	851,000 ²	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	Calculation method A Core Sample Data
S-107	53,000 ¹	262,000 ²	261,000 ¹	1,109,000 ²	1,240,000 1/1/94	171,000 1/1/94	93 1/1/94	334,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method C
S-109	0 ¹	580,000 ²	2,100,000 ²	49,000 ¹	783,000 1/1/94	84,800 1/1/94	454 1/1/94	165,000 1/1/94	noncomplexed	Hanson, November 30, 1997 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	Hanson, November 30, 1997 Calculation method C
S-112	0 ¹	453,000 ¹	1,057,000 ²	23,000 ¹	1,840,000 1/1/94	466,000 1/1/94	476 1/1/94	907,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Best Basis inventory + 1,000 gal difference 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	Hanson, November 30, 1997 Calculation method D
SX-102	0 ¹	745,000 ²	1,612,000 ²	443,000 ¹	1,900,000 1/1/94	378,000 1/1/94	629 1/1/94	735,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method C
SX-103	4,000 ¹	903,000 ²	2,029,000 ²	435,000 ¹	2,370,000 1/1/94	508,000 1/1/94	648 1/1/94	989,000 1/1/94	noncomplexed	Hanson, November 30, 1997 Calculation method D

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

Tank Number	Supernatant Volume (L)	Pumpable Liquid Reserving (L)	Saltcake Vol (L)	Sludge Vol (L)	Total Curies in Tank ^a (decay date)	Cs-137 Curies in Liquid ^a (decay date)	Ts-99 Curies in Liquid ^a (decay date)	Total Curies in Liquid ^a (decay date)	Waste Compa/Utility Group	Special Conditions (1 gallon = 3.785 liters)
SX-104	0 ¹	858,000 ¹	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	noncompleted	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	noncompleted	¹ Hanlon, November 30, 1997 ² Calculation method D
SX-106	231,000 ¹	955,000 ¹	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	noncompleted	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	124 1/1/94	686 1/1/94	noncompleted	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	noncompleted	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	completed	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	completed	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 supernatant instead of the 13,000 gal listed in Hanlon. Tank Coordinator took 10 micron monitors and increased the supernatant 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	completed	¹ Hanlon, November 30, 1997 ² Calculation method D
U-106	57,000 ¹	251,000 ¹	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	completed	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	noncompleted	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 5/96	641,000 1/1/94	noncompleted	¹ Hanlon, November 30, 1997 ² Calculation method D
U-109	72,000 ¹	665,000 ²	1,499,000 ¹	182,000 ¹	839,000 1/1/94	271,000 1/1/94	586 1/1/94	529,000 1/1/94	completed	¹ Hanlon, November 30, 1997 ² Calculation method D
U-111	0 ¹	419,000 ¹	1,150,000 ¹	98,000 ¹	938,000 1/1/94	198,000 1/1/94	230 1/1/94	386,000 1/1/94	noncompleted	¹ Hanlon, November 30, 1997 ² Calculation method D

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

DL = Drains/Liquid

TCR = Tank Characterization Report

Status as of December 6, 1997

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

Figure 2-2. Single-Shell Tank Farms Interim Stabilization Progress Status

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 feed.

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

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

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.

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 Pyl Jumper	Cover Blocks	Transfer Lines Hydro'd	WPIE Cabinet	PIC Skid	DCRT	Sampling	Dilution Systems
A-101	C	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	2R	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	C	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	A	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 PH 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 (5)	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 in service, however stabilization system it needs to be changed out.

³ Storage cooler required to fulfill exclusion requirement.

⁴ A second FGM will be installed to monitor the dome space instead of the SHMS.

⁵ 1 gallon = 3.785 liters.

Numbers in parentheses indicate quantity of item in that tank.

C = Completed.

DCRT = double-contained receiver tank.

DTU = Dilution Tank.

FGM = flammable gas monitor.

OOT = Overhead Transfer.

NR = Not Applicable.

NR = Not Required.

PIC = portable instrument control.

R = Required.

SHMS = Standard Hydrogen Monitoring System.

WFIE = weight factor instrument enclosure.

2.5.2.3. Tank Equipment and Waste Materials. Noncontaminated or decontaminated external tank equipment, such as exhausters, SHIMs, 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 W-058 water-heating systems (or equivalent) will be available as a source of hot water for transfer line flushes.

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

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 may 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

Twenty-six SSTs will require installation of the equipment necessary to pump and transfer the liquids. The other 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 $\geq 50,000$ 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 $\geq 5,000$ 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 1997b).

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* (Aistad 1990), and are proceduralized in "Tank Farm Facility Interim Isolation" (LMHC 1997b).

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. O&M
10. Maintenance	20. Environmental Protection

O&M - 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.

2.3.2 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 1997b) 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 1997b).

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

3.1.1 Project

3.1.1.1. DOE 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 affecting 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 there are no new safety issues affecting Tank SY-102 and that the current schedule for retrieval remains the same and is not 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 it should be assumed 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 no more than one leaker per year will be experienced.

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 work arounds 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, if required, can continue to be obtained offsite as done in the past.

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 will 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 the piping will remain available for use by this program. The majority of this piping will be disconnected or capped during the isolation phase of the 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, and (3) above ground 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 evaporator campaigns will be performed as needed.

3.1.2.9. Co-mingling of Waste. It will be assumed for scheduling purposes that noncomplexed, complexed, and complexed-TRU waste may be co-mingled. West Area Tank SY-102 is the only DST available to receive waste. Approval to co-mingle liquid waste will be in place by January 1, 2000. Gaining this approval is seen as high risk. Failure to approve co-mingling will extend the schedule by approximately 12 months.

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 elevated gas concentrations dictate its operation.

3.1.2.11. Standby Exhausters. Four of the six exhausters procured by the stabilization program are available. An exhauster slated for W-320 back-up will be available after October 1999 and the sixth exhauster will be available from Project W-320 by July 2000. Therefore, no new exhauster procurement is necessary.

3.1.2.12. Standby Exhausters Modification. Existing exhausters will be modified to be compliant with requirements of a major stack, but will be approved to allow minor stack designation. This will allow for flexible usage in the future.

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

3.1.2.14. Single-Shell Tank Pumping Performance. Historical data was 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.

3.1.2.15. 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.

3.1.2.16. Operator Turnover. As a result of the ongoing and projected downsizing of 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. There is a potential for these bargaining unit personnel to displace the bargaining units personnel currently assigned to the SST IS organization. The turnover rate resulting from the operator displacements is assumed to be 25 percent annually.

3.1.3 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 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. Authorization to pump Tank C-103 with the organic layer in place will be given by RL by April 30, 1999, and an acceptable receiver tank will be identified.

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 facility group (FG)2 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.
- A standby exhauster will be required for emergency pumping, however, initiation of pumping can begin without the required exhauster in place.
- 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.

3.1.4.6. Funding Levels. After FY 1998, funding above the current baseline will be available to support reasonable project ramp-up and sustained operations. Funding will be carried over from year to year.

3.1.4.7. Tanks BY-105 and BY-106. Tanks BY-105 and BY-106 will be pumped at the same time to optimize cost and schedule.

3.2 MAJOR RISKS

The Stabilization Critical Risk Management List (Table 3-1) identifies the critical risks.

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 1997b), and the associated procedures. Risks with risk values of medium or high were placed on a Critical Risk Management List (see Table 3-1).

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.

Table 3-1 Interim Stabilization Critical Risk Management List (4 Sheets)

	Task	Owner	Assumption or Issue	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob	Risk Conseq	Risk Value (L-M-H)
STA-1	Leaking SSTs will continue to be identified	Management/ Bill Rose	Emergency pumping of leaking SST will be initiated within 30 days	Time pumping will impact Stabilization and TWRIS resources, wet team and schedule impacts. If a completed task, leaked while Tank ST-192 was full of unrecycled waste, and approval to re-mange waste is not in place, there could be a large schedule impact. Also use a space evacuator from W-320 or CPO	Cost/ Schedule	Plan and allocate separate resources to support emergency pumping of one wraparound tank per year. Establish agreement to use space evacuator from either W-320 or CPO to avoid shutting down cold-well pumping to pump leaking tank.	Implement in staffing and resource program baseline	H	M	H
STA-2	Equipment will continue to be produced and fabricated offsite	Engineering/ Jim Kunka/Vick	HAMTC Agreements will not change resulting in different fabrication capabilities	Final HAMTC agreements will not be adhered to, thus causing schedule delays	Cost/ Schedule	No new scope anticipated anticipated	Maintain consistency with awarding work	H	M	H
STA-3	Disturb/leak water additions	Site Safety/ Tom Gear	Disturb/leak water added to cell well as well as in addition prohibited by record of law and implementing regulations	Plugging of lines, delayed schedule, additional environmental costs, stabilization SST-35 may be stopped	S&H/I	Request permission early enough to get approval		H	M	H
STA-4	Other facility closures affect trained personnel at TWRIS	Management/ Bill Rose	All other facilities are closed, long-term wet personnel "turnup" lower senior operators	There 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 S&H/Iization 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 DORT. No RIA will be required	Management/ Bill Rose	A TWRIS Management Assessment is assessed	Significant Baseline Schedule Impact if DOE requires Readiness Assessment	Schedule	None		H	M	H
STA-6	Pumping duration for the SSTs are accurate	Process Eng./ Van Boyles	The schedule for SST pumping has as its backbone the estimated pumping duration	If these estimates are not representative, approved durations may delay the scheduled completion out	Technical	The pumping duration will be recalculated on an ongoing basis and updated completion schedule will be reviewed with PDR	Use of subsurface pits/pumps. Evaluate multiple pump installations on long-duration pump pump tanks, larger diameter screens, etc.	M	H	H
STA-7	C-103 organic layer left in tank (not removed prior to pumping)	Safety Issue/ Responsible/ Joe Schenck	C-103 has an organic layer that will not be removed	Approval not obtained from RL to leave organic layer in place	Management	Develop strategy early in the project to obtain approval. Obtain approval by April 30, 1992	Include cost and schedule for these activities in Baseline	M	H	H

Table 3-1 Interim Stabilization Critical Risk Management List (4 Sheets)

	Title	Owner	Description of Issues	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob	Risk Consequence	Risk Value (L-M-H)
STA-8	New technology for BY-105	Stabilization/ Mike Koch	BY-105 has concern in at Bayhead salt well installation techniques are not expected to be effective	Plan for significant activity in design, test, and construction	Technical	Sample BY-105 to verify extent of corporate distribution	Include cost and schedule for these activities in Baseline	M	M	B
STA-9	Flammable gas evolution may limit the number of wells pumped simultaneously using one DORT	Process Eng./ Ken Holzman	Current calculations will limit the number of SSTs which can be pumped concurrently due to low inherent safety rate in supporting calculations	Baseline schedule will not be met. Delay in West Area saltwell pumping resulting in interference with Feed Delivery Mission	Technical	Perform tracer gas study to verify leak ventilation rates. Update SRO leak calculations. Open tank venting to provide added ventilation. Consider addition of leak flowmeter	Include all activities in baseline cost and schedule	M	M	B
STA-10	Automation Bore modification to modify material balance controls	Mao Safety/ Tim Gore	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 with Feed Delivery Mission	Technical	Conduct studies to determine appropriate L&C controls to meet saltwell pumping schedule. Balance risk of leaking from tank to risk of leakage from Salt Well	Include Automation Bore activities in program baseline	M	M	B
STA-11	SX Burn Sledge Cooler and Core Sampling NOC	Environmental/ Brad Branson	PTB for Sledge Cooler Stack when combined with Core Sampling PTD may trigger NOC as major stack	Delay of completion of SX Burn pumping or sampling	Technical	Environmental needs to complete NOCs		M	M	B
STA-12	Water separator shutdown interlocks	Engineering/ S. Ruckey	Complexity of control systems has many chances for spurious trip and resultant pump system shutdown	TOE is delayed due to structures and reactor evaluation	Technical	Perform R&M analysis and recommend L&C modifications	Include study and recommendations in baseline plan	M	M	B
STA-13	Lean Flugging	Stabilization Ops/ J.R. Blythe	Submerged salt solution will crystallize upon cooling	Lean Flugging	Technical	Enthalpy systems will be installed on tanks with solution temperatures over 100 degrees F. Solution production and loss temperatures from evaluation are planned for each transfer route	Activities included in program baseline	M	M	B
STA-14	102-SV pump failure	Unit Perm Ops/ Dale Allen	102-SV pump required for electric transfer	Baseline schedule requires multiple consecutive transfers per cycle	Technical	Spare pump, in-place repair procedures utilized if previous failure. This item would be funded from Capex budget	None	M	M	B
STA-15	Formulation Feed Delivery Schedule	Management/ Bill Ross	Ongoing negotiations may result in significant feed transfer and delivery requirements, including West Area recovery	Interference with Baseline Schedule	Management	Update transfer system evaluation when details are finalized	Include evaluation in baseline cost and schedule	M	M	B
STA-16	Allowance for labor surpluses due to contract negotiations	Management/ Bill Ross	Labor disruption	Delay in Baseline Schedule	Management	None		L	M	M

Table 3-1 Interim Stabilization Critical Risk Management List (4 Sheets)

	Title	Owner	Assessment of Risks	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob	Risk Change	Risk Value (L-M-H)
STA-17	Stabilization activities impact on retrieval activities	Management/ Bill Rose	No changes in firm activities, work planning activities, and overnight activities was identified in Retrieval planning. Stabilization activities will increase that need further	Stabilization activities will place an additional burden on administrative, planning, and overnight resources. Personnel resources may also need bolstered	Schedule	We will integrate schedules, convert additional routes and equipment to optimize impacts. Separate operations, maintenance, and program organizations will be established to maximize resource efficiency	Mitigating Action	M	M	M
STA-18	Critical component fails (244-S DGRY, 244-U DGRY)	Process Eng/ Van Boyles	Stillwell pumping in West Area dependent on single failure mode pathways	Unrecoverable schedule delays	Schedule	Evaluate R and RY Farm pumping effect to RY-102. Evaluate emergency for 244-U DGRY	Mitigating action	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 starting and waste transfers	Schedule	Maintain direct matrix support from the lab to keep apprised of lab status		M	M	M
STA-20	Stillwell end state WRT Organic Safety Issue	Risk Safety/ Tom Gore	Resolution of organic USQ may prevent meeting stabilization criteria	Delay in the completion of Stabilization Program	Schedule	None	RL to decide whether loading tank or organic end-state is safer	L	H	M
STA-21	Waste volumes in SY-102	Waste Tk Oper/ C. Elyan	The current cross-line transfer of waste from SY-102 will be necessary, it is the only DST currently available for SY-102 in West Tank Farm	RL for W-402 is incomplete. The current cross-line line may just not meet hydro test	Technical	Complete the OER & Start-up of the Cross-line transfer system	Meet the schedule. Concur to the existing direct buried loop	L	H	M
STA-22	Verifying C-103 with the exhausters we are procuring	Engineering/ Dan Kradovich	The organic and tox in the headspace could lead the Toxicological NOC above the limits. This could require some type of treatment or containment system(s) e.g., Carbon Absorption	May not be able to verify that tank with the exhausters 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	Process Eng/ Karl Hodgson	Compatibility program for multiple operating simultaneously not defined	Pumping waste compatibility requirements will limit the number of tanks pumped simultaneously, thus causing a backlog schedule impact	Technical	Compatibility assessment planned in baseline	Assess additional compatibility procedure required	M	M	M
STA-24	OER violation will occur due to multiple tanks needing 2 hr check	Risk Safety/ Tom Gore	Physical constraints on operators ability to get required readings	Delayed readings of required data resulting in a potential OER violation	Technical	Increase staffing to allow adequate coverage		M	M	M
STA-25	Exhausters currently set aside for W-320 becomes available	Mgmt/Bill Rose	Part W-320 exhauster becomes available October 1999, second exhauster available July 2000	W-320 delayed such that spare exhausters are not available on time	Technical	Monitor W-320 progress, establish a backup exhauster with CPO core sampling train	Establish W-320 progress. Establish a backup exhauster with CPO core sampling train	M	H	H

Table 3-1 Interim Stabilization Critical Risk Management List (4 Sheets)

	Title	Owner	Assumption or Issue	Risk	Risk Item Type	Mitigating Action(s)	Recommendations	Risk Prob	Risk Conseqs	Risk Value (L-M-H)
STA-26	Co-swinging of unscreened and roughened-TRU waste with nonroughened waste	Process Eng / Kent Hodgson	Current DOE Orders do not allow co-swinging	Complicated and complicated TRU tanks must be grouped separately - 15 months reduction in schedule	Technical	Waste co-swinging DOE Order requirement by July 2000	Support worker via H24/RL	M	N	H

BBO = Basic Set Backfill Operations

CPO = Characterization Project Operations

DCRT = double-shell tank receiver tank

DOE = U.S. Department of Energy

DST = double-shell tank

ES&H = Environmental, Safety, and Health

FDH = Fluor Daniel Hanford, Inc.

HANC = Hanford Atomic Industrial Trades Council

ISC = instrumentation and control

IS = Interim Stabilization

NOC = Notice of Construction

ORR = operational readiness review

OSR = operational safety requirements

PTE = potential to tank

RA = Reliability Assessment

RAM = Reliability, Availability, and Maintainability

RL = U.S. Department of Energy, Richland Operations Office

SST = single-shell tank

TOE = total operating efficiency

TRU = transuranic

TWS = Tank Waste Remediation System

USO = waste-related safety question

WRT = waste stream status tracking

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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 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 FY). 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 Co-mingling of Waste

Per DOE direction, this plan assumes the complexed, noncomplexed, and complexed-TRU waste can be co-mingled in receiver tanks (DCRT and DST). The PHMC will submit a formal request for authorization to co-mingle these waste types. Prior requests for allowing co-mingling 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.

4.2.3 Tank C-103 Organic Solvent Layer

Per DOE direction this plan assumes that Tank C-103 can be interim stabilized without removing the layer of organic solvent. The PHMC will formally request authorization for this approach.

4.3 TECHNICAL DEVELOPMENT

To pump the waste from Tank BY-105, additional technical development work is required. Tank BY-105 has a very hard surface layer of Portland cement (depth unknown).

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.

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. The primary schedule constraint is the pumping duration on individual tanks. 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. In the 200 West Area, the primary consideration is the large number of tanks that must be established.

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 4-1. 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 4-2. 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 4-3 through 4-7 and Tables 4-2 and 4-3 and are described below.

Figure 4-3 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.

Table 4-1. Pumping Durations.*

Area	Tank Farm	Tank	Pump Time (Days)	Waste Type
West	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
	U Farm	U-102	316	Complexed
		U-103	450	Complexed
		U-105	380	Complexed
		U-106	147	Complexed-TRU
		U-107	388	Noncomplexed
		U-108	452	Noncomplexed
		U-109	422	Complexed
		U-111	285	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.

TRU = transuranic.

Figure 4-1. Waste Flow for Single-Shell Tank Interim Stabilization System Flow Diagram.

Figure 4-2c S and SY Farm Piping Configuration

ALTERNATE ROUTES

TO	FROM	VALVE	NOTE
241-7-100	241-7-101	100-101	
241-7-101	241-7-102	101-102	
241-7-102	241-7-103	102-103	
241-7-103	241-7-104	103-104	
241-7-104	241-7-105	104-105	
241-7-105	241-7-106	105-106	
241-7-106	241-7-107	106-107	
241-7-107	241-7-108	107-108	
241-7-108	241-7-109	108-109	
241-7-109	241-7-110	109-110	
241-7-110	241-7-111	110-111	
241-7-111	241-7-112	111-112	
241-7-112	241-7-113	112-113	
241-7-113	241-7-114	113-114	
241-7-114	241-7-115	114-115	
241-7-115	241-7-116	115-116	
241-7-116	241-7-117	116-117	
241-7-117	241-7-118	117-118	
241-7-118	241-7-119	118-119	

THIS IS NOT
A PUMP
A TANK
A VALVE
A PIPE
A FLOW
A PRESSURE

241-7 TANK FARM STABILIZATION PUMPING PLAN

REVISIONS: 001

HPF-2358 Rev. 1

Figure 4-2d T Farm Piping Configuration

245-U FARM
STABILIZATION PUMPING PLAN

REVISIONS
1.0-1.001 Initial Design
1.0-1.002 Add 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011
1.0-1.003 Add 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011
1.0-1.004 Add 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011
1.0-1.005 Add 10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011

100 TO 1000
100 TO 1000
100 TO 1000
100 TO 1000
100 TO 1000
100 TO 1000

REVISIONS

Figure 4-2c. U Farm Piping Configuration

Figure 4-3. Double-Contained Receiver Tank and Tank Farm Subsystem Pumping Requirements.

Figure 4-4 Cumulative Performance Requirements

Figure 4-5 Removal of Radioactive Material

244-S DCRT LOADS (2-Week Intervals)

Figure 4-6 244-S Double-Contained Receiver Tank Loads

Figure 4-7 Cross-Site Transfers

Table 4-2. Performance Requirements of Major Subsystems.

Equipment	Average Usage*#	Peak Usage*	Nominal Rating*
244-S DCRT	18,600 gal/week over 54 week period	33,900 gal/week	16,000 gal/transfer
244-TX DCRT	6,800 gal/week over 12 week period	17,600 gal/week	24,000 gal/transfer
244-U DCRT	21,900 gal/week over 26 week period	34,400 gal/week	24,000 gal/transfer
244-BX	13,900 gal/week over 16 week period	19,000 gal/week	24,000 gal/transfer
244-CR	13,600 gal/week over 8 week period	24,000 gal/week	15,000 gal/transfer
Cross-Site Transfer Line	589,000 gal/transfer, 8 transfers	655,000 gal transfer in 1 week	680,000 gal/transfer

DCRT = double contained receiver tank

* 1 gallon = 3.785 liters.

Over a time period of concentrated usage.

Table 4-3 Evaporator Campaign Schedule

Campaign	Start Date	Staging Tank(s)	Source	Waste Feed Type	Feed Volume (Kgal)	Receiver Tank
98	Cold Run Concentrated wastes from 106-AW (Campaign 97-2) transferred to 103-AP					
99-1	3/99	Direct to 102-AW	102-AY, 106-AP, 108-AP	DN	1000+	105-AP
99-2	8/99	107-AP	102-SY & 106-AP	DN-SWL & DN	1000+	105-AP
	9/99	Direct to 102-AW	104-AW	DN	700	105-AP
00-1	7/00	104-AP	102-SY & 106-AP	DN-SWL & DN	1000+	105-AP 104-AW 101-AP
01-1	2/01	107-AP	102-SY & 101-AN	DN-SWL	1000+	101-AP
01-2	7/01	107-AP	106-AP & 108-AP	DN-SWL & DC-SWL	1000+	101-AP 104-AN
02-1	11/02	105-AN	105-AW & 101-AN	DN & DN/ DC-SWL	1000+	104-AN
02-2	4/02	107-AP	102-SY & 105-AW	DN/DC-SWL & DN	1000+	104-AN 103-AP

DC = Dilute complexed waste

DN = dilute noncomplexed waste

SWL = saltwell liquid

Figure 4-4 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 September 2002, with 99 percent removed by September 2003.

Figure 4-5 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 4-6 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. An alternative to bypass this DCRT will be evaluated.

Figure 4-7 indicates that only eight cross-site transfers of liquid will be required over the life of the project.

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 year 2002. Table 4-3 identifies the evaporator schedule.

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 1997b). 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 1997b).

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 1997b).

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 FG3 per *Tank Waste Remediation System Basis for Interim Operation* (FDH 1997a). 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.

DOE recently approved an SER that authorizes IS activities for FG2 and FG3 SSTs except Tank A-101. The additional controls directed by DOE will be implemented prior to resuming the SST IS program. An additional Authorization Basis change will be required to pump Tank A-101.

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.

5.3.1 Assumptions

- All tanks (except T-104 and T-110) 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.

Table S-1 Single-Shell Interim Stabilization Permitting Strategy

Task	System Description	NOC Status	FY
SX-104	FG-3 ¹ , on 241-SX active ventilation system	Short form complete	1998
SX-106	FG-2 ² , on 241-SX active ventilation system	Concurrence needed from WDOH ³	1998
T-104	FG-3, passively ventilated	No NOC required	1998
T-110	FG-3, passively ventilated	No NOC required	1998
A-101	FG-2 ² , active needed	Separate NOC complete	1999
S-102	FG-2, active needed	NOC submitted (<0.1) ⁴	1999
S-103	FG-2, active needed	NOC submitted (<0.1)	1999
S-106	FG-2, active needed	NOC submitted (<0.1)	1999
AX-101	FG-3, passively ventilated	NOC submitted (<0.1)	2000
BY-105	FG-2, concrete layer, active needed	NOC submitted (<0.1)	2000
BY-106	FG-2, active needed	NOC submitted (<0.1)	2000
S-101	FG-2, active needed	NOC submitted (<0.1)	2000
S-107	FG-2, active needed	NOC submitted (<0.1)	2000
S-109	FG-2, active needed	NOC submitted (<0.1)	2000
S-111	FG-2, active needed	NOC submitted (<0.1)	2000
C-103	FG-3, passively ventilated	Separate NOC required due to organics	2001
S-112	FG-2, active needed	NOC submitted (<0.1)	2001
SX-105	FG-2, on 241-SX active ventilation system	Concurrence needed from WDOH	2001
SX-101	FG-2, on 241-SX active ventilation system	Concurrence needed from WDOH	2002
SX-102	FG-2, on 241-SX active ventilation system	Concurrence needed from WDOH	2002
SX-103	FG-2, on 241-SX active ventilation system	Concurrence needed from WDOH	2002
U-103	FG-2, active needed	NOC submitted (<0.1)	2002
U-106	FG-2, active needed	NOC submitted (<0.1)	2002
U-102	FG-2, active needed	Not in current NOC, sampling required	2003
U-105	FG-2, active needed	NOC submitted (<0.1)	2003
U-107	FG-2, active needed	NOC submitted (<0.1)	2003
U-109	FG-2, active needed	NOC submitted (<0.1)	2003
U-111	FG-2, active needed	NOC submitted (<0.1)	2003
U-106	FG-2, active needed	NOC submitted (<0.1)	2003

¹FG-3 Facility Group 3 Tank²FG-2 Facility Group 2 Tank³WDOH concurrence needed to treat the remainder of SX tanks as SX-104⁴(<0.1) NOC under review that covers tanks with <0.1 mrem/yr potential to emit (PTE)

FY = fiscal year

NOC = notice of construction

SER = safety evaluation report

WDOH = Washington State Department of Health

- The SX Farm ventilation system (sludge cooler) will be used to satisfy the SER ventilation requirement.
- 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 organic content
- Tanks A-101 and SX-104 have separate NOCs currently approved
- The standby exhaust stacks will 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 for minor stacks (potential to emit of less than 1×10^{-6} sievert per year [0.1 mrem/yr]) has been submitted. The NOC is in the comment incorporation cycle. All SSTs remaining to be stabilized are included in this NOC except for SX tanks (ventilated by the sludge cooler), U-102 (inadequate sampling data currently exists) and C-103 (organic layer issue)
- If tanks or activities emerge that 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 mrem/yr).

5.3.3 Schedule Impacts

- The SX tanks will require concurrence from the Washington State Department of Health that the remaining SX saltwell activities do not increase the potential to emit, following the logic of the SX-104 NOC. If this concurrence is not given, an NOC will have to be submitted.
- The C-103 NOC will have to be submitted in the same time frame of June 1999.
- The additional tanks in the out-years would be permitted using this same strategy.

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 1998a) and follow-on correspondence from FDH to LMHC (Hoogendoorn 1998), LMHC to FDH (Wood 1998), and RL to FDH (Sieracki 1998b and Sieracki 1998c).

DOE initially directed the preparation of three scenarios for completing SST IS. The cost/schedule implications of the three cases were not acceptable. However, reviewing the results with the PHMC, DOE, and Ecology resulted in agreement on a fourth case that will be used as the Base Case for future submittals and planning. The planning process for Case 1 is described below. The information developed for Case 1 was then modified to reflect goals and constraints of the Base Case for this revision of the Project Plan.

The systematic and controlled baseline planning process developed and implemented during the TWRS Retrieval and Disposal Mission Readiness-To-Proceed Assessment was utilized to develop Case 1 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.

¹ Primavera is a trademark of Primavera Systems, Inc.

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
- 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 (full-time equivalent [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).

H08058041.4-1

Figure 6-1 Tank Waste Remediation System Work Breakdown Structure

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).

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 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 pumping durations and completion dates from the schedule for stabilization of each tank. 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 3 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.

DCRT = Double Contained Recovery Tank
SST = Single-Shell Tank

HG0000001182

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

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 01 04 39 01	SST Process Engineering Studies	230 070	Provide Interim Stabil Prog Mgt & Tech Funct's
1 01 02 01 04 39 02	Baseline/Financial Control	230 070	Provide Interim Stabil Prog Mgt & Tech Funct's
1 01 02 01 04 39 03	Project Management	230 070	Provide Interim Stabil Prog Mgt & Tech Funct's
1 01 02 01 04 39 04	Regulatory/Environmental Compliance	230 085 230 010 230 015 230 020 230 030 230 070 230 075 230 080	Audit/Action Comb Compl, Non-Compl & TRU Waste Appro Comb Compl, Non-Compl, & Comb/Non-TRU Waste Approve Authorization Basis Amendment Approve the Pumping of Waste/Lost SST's Prepare AB Documents to Pump W/Unblt/Lost Tanks Provide Interim Stabil Prog Mgt & Tech Funct's Prep Doc Permitting (NOC) Interim Stab Exhaust Review/Approve NOCs, Interim Stab Exhaust
1 01 02 01 04 39 05	SST Stabilization Capital Equipment	230 090 230 095	Design the Interim Stabil Exhausters Procure the Interim Stabil Exhausters
1 01 02 01 04 39 06	Maintain SST Emergency Pumping Capability	230 060	Provide Emerg Pumping Plans Now Activated Locking
1 01 02 01 04 39 07	Overground Transfer Lines	230 086	Install Overground XFR Line if Ex Ris Fuels Hydro
1 01 02 01 04 40 01	Distillation and Isolate Tank A-101	230 110 230 115 230 121 230 123 230 130 230 140 230 142 230 152 230 154 230 156 230 162 230 164 230 168 230 172 230 178 230 180	Design A-101 Salvage Sys Components Procure/Fab/Upgrd Req Stabal Equip A-101 Eval A-101 Cond,Other FCC Tanks & AB Amendment Approve the BER for Pumping A-101 Install/Test the A-101 EGM Install/Test the Exhauster for A-101 Install/Test Waste Stream Deburden Sys for A-101 Upgrd A Tank Foam (for A-101) Inertummers Bas State Analysis/Control Studies for A-101 Test (OTF) the Salvage Control Sys for A-101 Install VIB for Amperability Over Blocks A-101 Wireback SW Screen/Install SW Pump A-101 Salvage Sys Maint & Operability, A-101 Pump Stabilize A-101 by Pump to AP-108 Perform Post Stabal Activities on A-101 Perform Latent Isolation on A-101

**Table 6-1. Single-Sheet Task Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 01 04 40 02	Stabilize and Isolate Task A-102	230 095	Farm Isolation on L1 Remaining SST Prev & C-106
1 01 02 01 04 40 20	Tank Ventilation Sys 241-A Tank Farm	230 140	Install/Test the Exhauster for A-101
1 01 02 01 04 40 40	241-A Tank Farm Annual Hydro	230 174	Perf Annl Hydro Test of SW Transf Lines A-101
1 01 02 01 04 41 01	Stabilize and Isolate Task AX-101	230 210	Design AX-101 Saltwell Sys Components
		230 215	Procure/Fab/Upgrd Req Status Equip AX-101
		230 225	Qual Sample & Analysis AX-101
		230 230	Install/Test the AX-101 FGM
		230 240	Install/Test the Exhauster for AX-101
		230 242	Install/Test. Waste Bottom Disposal Sys AX-101
		230 245	Install PIC Skid or Upgrd WPIE Cabinet AX-101
		230 254	End State Analysis/Compare Studies for AX-101
		230 256	Test (OTF) the Saltwell Control Sys for AX-101
		230 262	Install VLV For Jamapa and Isidoro CB AX-101
		230 264	Warranty SW Bottom/Install SW Pump AX-101
		230 268	Saltwell Sys Maint & Operability, AX-101 Pump
		230 272	Stabilize AX-101 by Pump to AX-101
		230 278	Perform Post-Stabil. Activities on AX-101
		230 280	Perform Isolation Isolation on AX-101
1 01 02 01 04 41 10	Tank Ventilation Sys 241-AX Tank Farm	230 340	Install/Test the Exhauster for AX-101
1 01 02 01 04 41 40	241-AX Tank Farm Annual Hydro	230 274	Perf Annual Hydro Test SW Transf Lines AX-101
		230 374	Perf Annual Hydro Test SW Transf Lines, BY Farm
1 01 02 01 04 43 03	Stabilize and Isolate Task BY-103	230 085	Farm Isolation on L1 Remaining SST Prev & C-106
1 01 02 01 04 43 03	Stabilize and Isolate Task BY-103	230 305	Shutdown SST Burns and BY-103 System
		230 307	Develop Tech/Tools, Cal Thru BY-103 Control Layer
		230 310	Design BY-103 Saltwell Sys Components
		230 315	Procure/Fab/Upgrd Req Status Equip BY-103
		230 320	Run-In the Saltwell Pump for BY-103
		230 330	Install/Test the BY-103 FGM
		230 345	Install PIC Skid or Upgrd WPIE Cabinet BY-103
		230 350	Warranty/Install the Saltwell Screen for BY-103
		230 354	End State Analysis/Compare Studies for BY-103

**Table 6-1. Single-Shot Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 01 04 43 06	Stabilize and Isolate Tank BY-106	230 356	Test (OTF) the Saltwell Control Sys for BY-106
		230 360	Hydro Test Saltwell Lines, BY-106 to 244-BX
		230 362	Install Vlv Pa Jumper and Modify CB BY-106
		230 364	Weldout SW System/Install SW Pump BY-106
		230 366	Repair BY Farm Xtr Line Effecting Stabilization
		230 368	Salween Sys Isolate & Operability, BY-106 Prep
		230 372	Stabilize BY-106 by Pump to 244-BX
		230 376	Perform Post Stable Actuators on BY-106
		230 380	Perform Interim Isolation on BY-106
		230 405	Walkdown SST Farm and BY-106 System
		230 410	Design BY-106 Saltwell Sys Components
		230 415	Process/Fab/Upd Reg Stabl Equip BY-106
1 01 02 01 04 43 09	Stabilize and Isolate Tank BY-109	230 420	Run-In the Saltwell Pump for BY-106
		230 430	Install/Test the BY-106 FOM
		230 440	Install/Test the Exhauster for BY-106
		230 445	Install PIC Skid or Upd WFE Cabinet BY-106
		230 452	Upd BY Tank Farm Infrastructure as Required
		230 454	End State Analysis/Comp. Studies for BY-106
		230 456	Test (OTF) the Saltwell Control Sys for BY-106
		230 460	Hydro Test Saltwell Lines, BY-106 to 244-BX
		230 462	Install Vlv Pa Jumper and Modify CB BY-106
		230 464	Weldout SW System/Install SW Pump BY-106
		230 466	Salween Sys Isolate & Operability, BY-106 Prep
		230 472	Stabilize BY-106 by Pump to 244-BX
1 01 02 01 04 43 10	DCRT 244 BX for SST 241-BY Tank Farm	230 476	Perform Post Stable Actuators on BY-106
		230 480	Perform Interim Isolation on BY-106
		230 685	Form Isolation on 11 Remaining SST Prev & C-106
1 01 02 01 04 43 10	Pack Vegetation Sys 241-BY Tank Farm	230 440	Install/Test the Exhauster for BY-106
		230 432	Perf DCRT Isolat & Operability Checks for 244-BX
1 01 02 01 04 43 10	Stabilize and Isolate Tank C-103	230 505	Walkdown SST Farm and C-103 System
		230 510	Design C-103 Saltwell Sys Components
		230 515	Process/Fab/Upd Reg Stabl Equip C-103
		230 520	Run-In the Saltwell Pump for C-103
		230 530	Install/Test the C-103 FOM

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 540	Install/Test the Exhauster for C-103
		230 545	Install PIC Skid , Upgd WFE Cabinet C-103
		230 552	Upgd C Tank Farm Infrastructure as Required
		230 554	End State Analysis/Concept Studies for C-103
		230 556	Test (DFT) the Saltwell Control Sys for C-103
		230 560	Hydro Test Saltwell Lines from C-103 to CR-003
		230 562	Install W/Ps Jumper/Modify Cvr Blocks C-103
		230 564	Warranty SW Screen/Install SW Pump C-103
		230 568	Saltwell Sys Maint & Operability, C-103 Propg
		230 572	Stabilize C-103 by Pump to CR-003
		230 576	Perform Post Stabl/ Activation on C-103
		230 580	Perform Interim Isolation on C-103
1 01 02 01 04 44 03	Stabilize and Isolate Tank C-105	230 085	Perform Isolation on E1 Remaining SST Prev & C-106
1 01 02 01 04 44 06	Stabilize and Isolate Tank C-106	230 085	Perform Isolation on E1 Remaining SST Prev & C-106
1 01 02 01 04 44 20	Tank Ventilation Sys 243-C Tank Farm	230 540	Install/Test the Exhauster for C-103
1 01 02 01 04 45 01	Stabilize and Isolate Tank S-101	230 A60	Walkdown SST Farm and S-101 System
		230 A20	Design S-101 Saltwell Sys Components
		230 A15	Procure/Fab/Upgrad Req Stabl Equip S-101
		230 A20	Run-In the Saltwell Pump for S-101
		230 A20	Install/Test the S-101 PIGT
		230 A45	Install PIC Skid , Upgd WFE Cabinet S-101
		230 A50	Warranty/Install the Saltwell Screen for S-101
		230 A54	End State Analysis/Concept Studies for S-101
		230 A36	Test (DFT) the Saltwell Control System S-101
		230 A60	Hydro Test Saltwell Lines from S-101 to 244-B
		230 A62	Install W/Ps Jumper/Modify Cvr Blocks S-101
		230 A64	Warranty SW Screen/Install SW Pump S-101
		230 A68	Saltwell Sys Maint & Operability, S-101 Propg
		230 A72	Stabilize S-101 by Pump to 244-B
		230 A76	Perform Post Stabl/ Activation on S-101
		230 A80	Perform Interim Isolation on S-101
1 01 02 01 04 45 02	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/Upgrad Req Stabl Equip S-102

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
6-15		230 B20	Run-In the Ballwell Pump for S-102
		230 B30	Install/Test the S-102 FOM
		230 B40	Install/Test the Submerser for S-102
		230 B45	Install POC Skot, Upgrad W/FIE Cabinet S-102
		230 B50	Workforce/Install the Saltnell Screen for S-102
		230 B52	Upgrad S Tank Farm Infrastructure as Required
		230 B54	End State Analysis/Comput Studies for S-102
		230 B56	Test (OTF) the Saltnell Control Sys for S-102
		230 B60	Hydro Test Saltnell Lines from S-102 to 244-S
		230 B62	Install Vtr Pn Jumper/Modify Cvr Blocks S-102
		230 B64	Workforce S/W Screen/Install S/W Pump S-102
		230 B66	Overgrad XER Lrm S-102 of Ex Rio Falls Hydro
		230 B68	Saltnell Sys Maint. & Operating, S-102 Pmpg
		230 B72	Stabilize S-102 by Pmpg to 244-S
		230 B74	Perform Post Stabil. Activities on S-102
		230 B80	Perform Remote Isolations on S-102
101 02 01 04 45 03	Stabilize and Isolate Tank S-103	230 C05	Walkdown SST Farm and S-103 System
		230 C10	Design S-103 Saltnell Sys Components
		230 C15	Procure/Fab/Upgrad Req Subst Equip S-103
		230 C20	Run-In the Ballwell Pump for S-103
		230 C25	Grab Sample & Analyze S-103
		230 C30	Install/Test the S-103 FOM
		230 C32	Perform ECRT Intake & Operability Check for 244-S
		230 C50	Workforce/Install the Saltnell Screen for S-103
		230 C54	End State Analysis/Comput Studies for S-103
		230 C56	Test (OTF) the Saltnell Control Sys for S-103
		230 C60	Hydro Test Saltnell Lines from S-103 to 244-S
		230 C62	Install Vtr Pn Jumper/Modify Cvr Blocks S-103
		230 C64	Workforce S/W Screen/Install S/W Pump S-103
		230 C68	Saltnell Sys Maint. & Operating, S-103 Pmpg
		230 C72	Stabilize S-103 by Pmpg to 244-S
		230 C74	Perform Post Stabil. Activities on S-103
		230 C80	Perform Remote Isolations on S-103
101 02 01 04 45 06	Stabilize and Isolate Tank S-106	230 D05	Walkdown SST Farm and S-106 System
		230 D10	Design S-106 Saltnell Sys Components
		230 D15	Procure/Fab/Upgrad Req Subst Equip S-106
		230 D20	Run-In the Ballwell Pump for S-106

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
6-16		230 D39	Install/Test the S-106 PGM
		230 D40	Install/Test the Exhibitor for S-106
		230 D41	Install PNC Skid, Upgrd W/PE Cabinet S-106
		230 D50	Witness/Install the Saltwell Screen for S-106
		230 D54	End Phase Analysis/Complete Studies for S-106
		230 D54	End Phase Analysis/Complete Studies for S-106
		230 D56	Test (O/T) the Saltwell Control Sys for S-106
		230 D60	Hydro Test Saltwell Lines from S-106 to 244-S
		230 D62	Install Vlv Pnl Amperability Cw Blocks S-106
		230 D64	Witness SW Screen/Install SW Pump S-106
		230 D68	Saltwell Sys Maint & Operability, S-106 Pump
		230 D72	Stabilize S-106 by Pump to 244-S
		230 D78	Perform Post Stabil Activation on S-106
		230 D80	Perform Isolation Isolation on S-106
		230 D80	Perform Isolation Isolation on S-106
6-16	1 01 02 01 04 43 07	230 E03	Walkdown SST Firm and S-107 System
		230 E10	Design S-107 Saltwell Sys Components
		230 E13	Process/Fab/Upgrd Req Stabl Equip S-107
		230 E20	Run-In the Saltwell Pump for S-107
		230 E30	Install/Test the S-107 PGM
		230 E43	Install PNC Skid, Upgrd W/PE Cabinet S-107
		230 E54	End Phase Analysis/Complete Studies for S-107
		230 E56	Test (O/T) the Saltwell Control Sys for S-107
		230 E60	Hydro Test Saltwell Lines from S-107 to 244-S
		230 E62	Install Vlv Pnl Amperability Cw Blocks S-107
		230 E64	Witness SW Screen/Install SW Pump S-107
		230 E68	Saltwell Sys Maint & Operability, S-107 Pump
		230 E72	Stabilize S-107 by Pump to 244-S
		230 E78	Perform Post Stabil Activation on S-107
		230 E80	Perform Isolation Isolation on S-107
6-16	1 01 02 01 04 43 08	230 G15	Perform Isolation on 11 Representing SST Firm & C-105
6-16	1 01 03 01 04 43 09	230 F05	Walkdown SST Firm and S-109 System
		230 F10	Design S-109 Saltwell Sys Components
		230 F13	Process/Fab/Upgrd Req Stabl Equip S-109
		230 F20	Run-In the Saltwell Pump for S-109
		230 F30	Install/Test the S-109 PGM

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 F40	Install/Test the Exchamber for S-109
		230 F45	Install FPG Head , Upgrade WPFE Cabinet S-109
		230 F50	Wireframe/Install the Saltwell Screen for S-109
		230 F54	End State Analysis/Complete Sketches for S-109
		230 F54	End State Analysis/Complete Sketches for S-109
		230 F56	Test (OTF) the Saltwell Control Sys for S-109
		230 F60	Hydro Test Saltwell Lines from S-109 to 244-S
		230 F62	Install Vlt Ptl Assembly/Modify Cvr Skidbox S-109
		230 F64	Wireframe SW Screen/Install SW Pump S-109
		230 F68	Saltwell Sys Maint. & Operability, S-109 Pump
		230 F72	Stabilize S-109 by Pump to 244-S
		230 F78	Perform Post Stabil. Activities on S-109
		230 F80	Perform Ischem Isolations on S-109
		230 F80	Perform Ischem Isolations on S-109
1 01 02 01 04 45 10	Build/Install Tank S-110	230 G13	Prep Isolation on 11 Remaining SST Pwr & C-106
		230 G05	Walkdown SST Pwr and S-111 System
1 01 02 01 04 45 11	Stabilize and Isolate Tank S-111	230 G10	Design S-111 Saltwell Sys Components
		230 G13	Process/Rel/Upgrade Req Study Equip S-111
		230 G20	Run-In the Saltwell Pump for S-111
		230 G30	Install/Test the S-111 FPGd
		230 G40	Install/Test the Exchamber for S-111
		230 G45	Install FPG Head , Upgrade WPFE Cabinet S-111
		230 G50	Wireframe/Install the Saltwell Screen for S-111
		230 G54	End State Analysis/Complete Sketches for S-111
		230 G56	Test (OTF) the Saltwell Control Sys for S-111
		230 G60	Hydro Test Saltwell Lines from S-111 to 244-S
		230 G62	Install Vlt Ptl Assembly/Modify Cvr Skidbox S-111
		230 G64	Wireframe SW Screen/Install SW Pump S-111
		230 G68	Saltwell Sys Maint. & Operability, S-111 Pump
		230 G72	Stabilize S-111 by Pump to 244-S
		230 G78	Perform Post Stabil. Activities on S-111
		230 G80	Perform Ischem Isolations on S-111
1 01 02 01 04 45 12	Stabilize and Isolate Tank S-112	230 H03	Walkdown SST Pwr and S-112 System
		230 H10	Design S-112 Saltwell Sys Components
		230 H13	Process/Rel/Upgrade Req Study Equip S-112
		230 H20	Run-In the Saltwell Pump for S-112

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 H23	Grab Sample & Analyze S-112
		230 H30	Install/Test the S-112 FOGM
		230 H43	Install PIC Skid, Upgrd W/E Cabinet S-112
		230 H50	Witness/Install the Saltwell Screen for S-112
		230 H54	End State Analysis/Compare Studies for S-112
		230 H56	Test (OTF) the Saltwell Control Sys for S-112
		230 H60	Hydro Test Saltwell Lines from S-112 to 244-S
		230 H62	Install Vlv Pk Jumper/Modify Cvt Blocks S-112
		230 H64	Witness B/W Screen/Install BW Pump S-112
		230 H65	Saltwell Sys Maint. & Operability, S-112 Prep
		230 H72	Stabilize S-112 by Pump to 244-S
		230 H78	Perform Post Stab'l Activities on S-112
		230 H80	Perform Isolation Details on S-112
		230 B40	Install/Test the Exhauster for S-102
		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
		230 Q72	Perform DCBT Maint. & Operability Check for 244-S
		230 T32	Perform DCBT Maint. & Operability Check for 244-S
		230 B74	Perf Ann'l Hydro Test of BW Trans/Lines S-102
1 01 02 01 04 43 20	Tank Ventilation Bn 241-S Tank Farm	230 J03	Witness BRT Farm and BX-101 System
		230 J10	Design BX-101 Saltwell Sys Components
		230 J15	Procure/Proc/Upgrd Req. Detail Equip. BX-101
		230 J20	Install the Saltwell Pump for BX-101
		230 J25	Grab Sample & Analyze BX-101
		230 J30	Install/Test the BX-101 BCTM
		230 J42	Install/Test Waste Stream Discharge Sys. BX-101
		230 J45	Install PIC Skid or Upgrd W/E Cabinet BX-101
		230 J50	Witness/Install the Saltwell Screen for BX-101
		230 J54	End State Analysis/Compare Studies for BX-101
		230 J56	Test (OTF) the Saltwell Control Sys for BX-101
		230 J60	Hydro Test Saltwell Lines from BX-101 to 244-S
		230 J62	Install Vlv Pk Jumper and Modify CB BX-101
		230 J64	Witness B/W Screen/Install BW Pump BX-101
		230 J68	Saltwell Sys Maint. & Operability, BX-101 Prep
1 01 02 01 04 45 30	DCBT 244-S for SS7 241-S Tank Farm		
1 01 02 01 04 45 40	241-S Tank Farm Annual Hydro		
1 01 02 01 04 46 01	Stabilize and Isolate Tank BX-101		

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 03 04 46 02	Stabilize and Isolate Tank SX-102	230 J72	Stabilize SX-101 by Pump to 244-B
		230 J78	Perform Post Stabil. Activities on SX-101
		230 J80	Perform Interim Isolation on SX-101
		230 K03	Walkdown SST Pumps and SX-102 System
		230 K10	Design SX-102 Saltwell Sys Components
		230 K15	Procure/Pack/Upgrade Reg. Stabal. Equip. SX-102
		230 K20	Run-In the Saltwell Pump for SX-102
		230 K25	Grab Sample & Analyze SX-102
		230 K30	Detail/Tip the SX-102 FGM
		230 K42	Install/Test Waste Stream Dilution Sys. SX-102
		230 K45	Install FIC Shed or Upgrad. W/FB Control. SX-102
		230 K50	Witness/Install the Saltwell Screen for SX-102
		230 K54	End State Analysis/Compare Studies for SX-101
		230 K56	Test (OTF) the Saltwell Control Sys for SX-102
		230 K60	Hydro Test Saltwell Lines from SX-102 to 244-B
		230 K62	Install Vlv Pk Amps and Modify CB. SX-102
		230 K64	Witness SW Screen/Install SW Pump. SX-102
		230 K68	Saltwell Sys Maint. & Operability, SX-102 Pump
		230 K72	Stabilize SX-102 by Pump to 244-B
1 01 01 01 04 46 03	Stabilize and Isolate Tank SX-103	230 K78	Perform Post Stabil. Activities on SX-102
		230 K80	Perform Interim Isolation on SX-102
		230 L03	Walkdown SST Pumps and SX-103 System
		230 L10	Design SX-103 Saltwell Sys Components
		230 L15	Procure/Pack/Upgrade Reg. Stabal. 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 FIC Shed or Upgrad. W/FB Control. SX-103
		230 L50	End State Analysis/Compare Studies for SX-103
		230 L56	Test (OTF) the Saltwell Control Sys for SX-103
		230 L60	Hydro Test Saltwell Lines from SX-103 to 244-B
		230 L62	Install Vlv Pk Amps and Modify CB. SX-103
		230 L64	Witness SW Screen/Install SW Pump. SX-103
		230 L68	Saltwell Sys Maint. & Operability, SX-103 Pump
		230 L72	Stabilize SX-103 by Pump to 244-B
		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. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 01 04 46 94	Stabilize and Isolate Tank SX-104	230 M32	Perform DCRT Adjust. & Operability Check for 244-S
		230 M48	Salinell Sys Maint. & Operability, SX-104 Pump
		230 M72	Stabilize SX-104 by Pump to 244-S
		230 M78	Perform Post-Start-Up Activities on SX-104
		230 M80	Review/Approve the NDC for SX-104 Exhaust
1 01 02 01 04 46 95	Stabilize and Isolate Tank SX-105	230 N03	Walkdown SST Farm and SX-105 System
		230 N10	Design SX-105 Saltwell Sys Components
		230 N15	Procure/Field/Upgrade Req. Std'd 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 FGDs
		230 N42	Install/Test Waste Stream Disposal Sys. SX-105
		230 N43	Install PIC Skid or Upgrade WFE Cabinet. SX-105
		230 N50	Witness/Install the Saltwell Screens for SX-105
		230 N54	End State Analysis/Compare Studies for SX-105
		230 N56	Test (OTF) the Saltwell Control Sys for SX-105
		230 N60	Hydro Test Saltwell Lines from SX-105 to 244-S
		230 N62	Install VLV Pa. Isolation and Isolation CB. SX-105
		230 N64	Witness EWP Bypass/Install SW Pump. SX-105
		230 N68	Salinell Sys Maint. & Operability, SX-105 Pump
		230 N72	Stabilize SX-105 by Pump to 244-S
		230 N78	Perform Post-Start-Up Activities on SX-105
		230 N80	Perform Interim Isolation on SX-105
1 01 02 01 04 46 96	Stabilize and Isolate Tank SX-106	230 P03	Walkdown SST Farm and SX-106 System
		230 P10	Design SX-106 Saltwell Sys Components
		230 P15	Procure/Field/Upgrade Req. Std'd Equip. SX-106
		230 P20	Run-In the Saltwell Pump for SX-106
		230 P25	Grab Sample & Analyze SX-106
		230 P30	Install/Test the SX-106 FGDs
		230 P42	Install/Test Waste Stream Disposal Sys. SX-106
		230 P43	Install PIC Skid or Upgrade WFE Cabinet. SX-106
		230 P10	Witness/Install the Saltwell Screens for SX-106
		230 P52	End State Analysis/Compare Studies for SX-106
		230 P54	Test (OTF) the Saltwell Control Sys for SX-106
		230 P56	Hydro Test Saltwell Lines from SX-106 to 244-S
		230 P60	
		230 P60	

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 P62	Install Vlv Pn Aspects and Modify CB BX-106
		230 P64	Warranty SW Screen/Install SW Pump SX-106
		230 P68	Saltwell Sys Maint & Operability, SX-106 Pump
		230 P72	Stabilize SX-106 by Pump to 244-B
		230 P78	Perform Post Stab'd Activities on BX-106
		230 P80	Perform Interim Isolation on SX-106
1 01 01 01 04 45 40	241-BX Tank Purge Annual Hydro	230 J474	Perf Annual Hydro Test SW Trans Lines BX-104
1 01 01 01 04 47 01	Stabilize and Isolate Tank T-101	230 Q85	Perf Isolation on U1 Remaining SST Trvs & C-106
1 01 01 01 04 47 04	Stabilize and Isolate Tank T-104	230 Q68	Saltwell Sys Maint & Operability, T-104 Pump
		230 Q72	Stabilize T-104 by Pump to 244-TX
		230 Q78	Perform Post Stab'd Activities on T-104
		230 Q80	Perform Interim Isolation on T-104
1 01 01 01 04 47 10	Stabilize and Isolate Tank T-110	230 R68	Saltwell Sys Maint & Operability, T-110 Pump
		230 R72	Stabilize T-110 by Pump to 244-TX
		230 R78	Perform Post Stab'd Activities on T-110
		230 R80	Perform Interim Isolation on T-110
1 01 01 01 04 47 11	Stabilize and Isolate Tank T-111	230 Q85	Perf Isolation on U1 Remaining SST Trvs & C-106
1 01 01 01 04 48 02	Stabilize and Isolate Tank U-102	230 S05	Walkdown SST Trvs and U-102 System
		230 S10	Design U-102 Saltwell Sys Components
		230 S15	Process/Tab/Upgrd Req Stab'd Equip U-102
		230 S20	Run in the Saltwell Pump for U-102
		230 S30	Install/Test the U-102 FGD
		230 S45	Install P/C Skid, Upgrd WTE Catalyst U-102
		230 S50	Warranty/Install the Saltwell Screen for U-102
		230 S54	End State Analysis/Comp'r Studies for U-102
		230 S56	Test (QTT) the Saltwell Control Sys for U-102
		230 S60	Hydro Test Saltwell Evap Drain U-102 to 244-U
		230 S62	Install Vlv Pn Aspects/Modify Cvr Blocks U-102
		230 S64	Warranty SW Screen/Install SW Pump U-102
		230 S68	Saltwell Sys Maint & Operability, U-102 Pump
		230 S72	Stabilize U-102 by Pump to 244-U
		230 S78	Perform Post Stab'd Activities on U-102
		230 S80	Perform Interim Isolation on U-102

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
101 02 01 04 48 03	Stabilize and Isolate Tank U-103	230 T05	Walkdown SST Firm and U-103 System
		230 T10	Design U-103 Saltwell Sys Components
		230 T13	Procure/Tub/Upgrade Req Stabil Equip U-103
		230 T18	Modify the U Pump Cross-Over Bypass (COB)
		230 T20	Run-In the Saltwell Pump for U-103
		230 T20	Install/Test the U-103 FOM
		230 T40	Install/Test the Balometer for U-103
		230 T43	Install PIC Skid, Upgrade WFR Cabinet U-103
		230 T50	Wireless/Install the Saltwell Screen for U-103
		230 T50	Wireless/Install the Saltwell Screen for U-103
		230 T52	Infrastructure for U Pump
		230 T54	End State Analysis/Compare Studies for U-103
		230 T56	Test (OVP) the Saltwell Control Sys for U-103
		230 T60	Hydro Test Saltwell Lines from U-103 to 244-U
		230 T62	Install Vlv Pk Jumper/Modify Cw Blocks U-103
		230 T64	Wireless SW Screen/Install SW Pump U-103
		230 T68	Saltwell Sys Manual & Operability, U-103 Prep
		230 T72	Stabilize U-103 by Pump to 244-U
		230 T78	Perform Post-Stabil Activities on U-103
		230 T80	Perform Interim Isolation on U-103
101 02 01 04 48 05	Stabilize and Isolate Tank U-105	230 U05	Walkdown SST Firm and U-105 System
		230 U10	Design U-105 Saltwell Sys Components
		230 U15	Procure/Tub/Upgrade Req Stabil Equip U-105
		230 U20	Run-In the Saltwell Pump for U-105
		230 U30	Install/Test the U-105 FOM
		230 U45	Install PIC Skid, Upgrade WFR Cabinet U-105
		230 U50	Wireless/Install the Saltwell Screen for U-105
		230 U54	End State Analysis/Compare Studies for U-105
		230 U56	Test (OVP) the Saltwell Control Sys for U-105
		230 U60	Hydro Test Saltwell Lines from U-105 to 244-U
		230 U62	Install Vlv Pk Jumper/Modify Cw Blocks U-105
		230 U64	Wireless SW Screen/Install SW Pump U-105
		230 U68	Saltwell Sys Manual & Operability, U-105 Prep
		230 U72	Stabilize U-105 by Pump to 244-U
		230 U78	Perform Post-Stabil Activities on U-105
		230 U80	Perform Interim Isolation on U-105

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
1 01 02 01 04 45 06	Stabilize and Isolate Tank U-106	230 V05	Walkdown SST Farm and U-106 System
		230 V30	Design U-106 Saltwell Sys Components
		230 V35	Procure/Fab/Upgrd Req Stahl Equip U-106
		230 V30	Run-In the Saltwell Pump for U-106
		230 V70	Install/Test the U-106 PGBs
		230 V45	Install PGC Skid , Upgrd WFE Cabinet U-106
		230 V50	Witness/Install the Saltwell Screen for U-106
		230 V54	End State Analysis/Comp. Studies for U-106
		230 V56	Test (C/T) the Saltwell Control Sys for U-106
		230 V60	Hydro Test Saltwell Lines from U-106 to 244-U
		230 V62	Install Vth Pst Jumper/Modify Cw Blocks U-106
		230 V64	Witness SW Screen/Install SW Pump U-106
		230 V68	Saltwell Sys Maint & Operability, U-106 Pump
		230 V72	Stabilize U-106 by Pump to 244-U
		230 V78	Perform Post Stahl Activities on U-106
		230 V80	Perform Interim Isolations on U-106
1 01 02 01 04 46 07	Stabilize and Isolate Tank U-107	230 W05	Walkdown SST Farm and U-107 System
		230 W30	Design U-107 Saltwell Sys Components
		230 W35	Procure/Fab/Upgrd Req Stahl Equip U-107
		230 W20	Run-In the Saltwell Pump for U-107
		230 W30	Install/Test the U-107 PGBs
		230 W45	Install PGC Skid , Upgrd WFE Cabinet U-107
		230 W50	Witness/Install the Saltwell Screen for U-107
		230 W54	End State Analysis/Comp. Studies for U-107
		230 W56	Test (C/T) the Saltwell Control Sys for U-107
		230 W60	Hydro Test Saltwell Lines from U-107 to 244-U
		230 W62	Install Vth Pst Jumper/Modify Cw Blocks U-107
		230 W64	Witness SW Screen/Install SW Pump U-107
		230 W68	Saltwell Sys Maint & Operability, U-107 Pump
		230 W72	Stabilize U-107 by Pump to 244-U
		230 W78	Perform Post Stahl Activities on U-107
		230 W80	Perform Interim Isolations on U-107
1 01 02 01 04 48 08	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 Stahl Equip U-108
		230 X20	Run-In the Saltwell Pump for U-108
		230 X20	Install/Test the U-108 PGBs

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 X40	Install/Test the Exhauster for U-108
		230 X45	Install P&C Stud., Upgrd WFE Cabinet U-108
		230 X50	Wireless/Install the Saltwell Screen for U-108
		230 X54	End State Analysis/Concept Studies for U-108
		230 X56	Test (OTF) the Saltwell Control Sys for U-108
		230 X60	Hydro Test Saltwell Lines from U-108 to 244-U
		230 X62	Install Vlv Fil Jumps/Modify Ctr Blocks U-108
		230 X64	Wireless SW Screen/Install SW Pump U-108
		230 X68	Saltwell Sys Maint. & Operability, U-108 Prep.
		230 X72	Stabilize U-108 by Pump to 244-U
		230 X76	Perform Post Stabil. Activities on U-108
		230 X80	Perform Interim Isolation on U-108
1 01 02 01 04 48 09	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 P&C Stud., Upgrd WFE Cabinet U-109
		230 Y50	Wireless/Install the Saltwell Screen for U-109
		230 Y54	End State Analysis/Concept Studies for U-109
		230 Y56	Test (OTF) the Saltwell Control Sys for U-109
		230 Y60	Hydro Test Saltwell Lines from U-109 to 244-U
		230 Y62	Install Vlv Fil Jumps/Modify Ctr Blocks U-109
		230 Y64	Wireless SW Screen/Install SW Pump U-109
		230 Y68	Saltwell Sys Maint. & Operability, U-109 Prep.
		230 Y72	Stabilize U-109 by Pump to 244-U
		230 Y76	Perform Post Stabil. Activities on U-109
		230 Y80	Perform Interim Isolation on U-109
1 01 02 01 04 48 10	Stabilize and Isolate Tank U-110	230 085	Perform Isolation on 11 Remaining SST Prev & C-106
1 01 02 01 04 48 11	Stabilize and Isolate Tank U-111	230 Z05	Walkdown SST Farm and U-111 System
		230 Z10	Design U-111 Saltwell Sys Components
		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 PCB

**Table 6-1. Single-Shell Tank Interim Stabilization Level 1 Logic/
Work Breakdown Structure Crosswalk. (15 Sheets)**

WBS	WBS Title	Logic #	Logic Title
		230 Z45	Install PSC Stud., Upgrade WPLE Column U-111
		230 Z50	Witness/Install the Saltwell Screen for U-111
		230 Z14	End State Analysis/Comp. Studies for U-111
		230 Z14	End State Analysis/Comp. Studies for U-111
		230 Z36	Test (OTP) the Saltwell Control System for U-111
		230 Z60	Hydro Test, Saltwell Lines from U-111 to 244-U
		230 Z62	Install Vn Pk Jumper/Modify Car Blocks U-111
		230 Z64	Witness SW Screen/Install SW Pump U-111
		230 Z68	Balance Recirculate & Operating, U-111 Pump
		230 Z72	Stabilize U-111 by Pump to 244-U
		230 Z78	Perform Post Stab. Activities on U-111
		230 Z80	Perform Interim Deletion on U-111
1 01 02 01 04 43 20	Tank Ventilation Sys 241-U Tank Farm	230 Y60	Install/Test the Exhauster for U-103
		230 Y60	Install/Test the Exhauster for U-109
		230 Y60	Install/Test the Exhauster for U-109
1 01 02 01 04 43 30	DCRT 244-U for SST 241-U Tank Farm	230 T17	Place the 244-U DCRT in Service
		230 T32	Perform DCRT Adjust & Operability Check for 244-U
		230 Y32	Perform DCRT Maint. & Operability Check for 244-U
		230 X32	Perform DCRT Maint. & Operability Check for 244-U
1 01 01 01 04 42 40	241-U Tank Farm Aerial Hydro	230 T74	Post Aerial Hydro Test of SW Treat Lines U-103
1 01 02 01 04 72 01	Pumpup for Remaining SST's (29)	230 _72	Pumpup for Remaining SST's (29)

CB = cover block
 DCRT = double-contained receiver tank
 FG = facility group
 FGM = flammable gas monitor
 NDC = Notice of Completion
 OTP = Operations Test Procedure
 PSC = Pump Instrumentation and Control
 RER = Safety Evaluation Report
 SST = single-shell tank
 SW = Saltwell
 TRU = transducer
 WPLE = weight factor instrument malfunction
 XPLE = Transfer

[illegible]

Figure 6-4 Single-Shell Tank Interim Stabilization Integrated Summary Pumping Schedule, Base Case (2 Sheets)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	ES00 ES01 ES02 ES03 ES04 ES05 ES06 ES07 ES08 ES09 ES10 ES11 ES12 ES13
SSTMS01	0	28SEP04		0	M-41-00 COMPL SST INTERIM STABILIZATION
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.38 SST Project Mgt/Tech Support/Compliance					
+ 1.01.02.01.04.38.01 SST Process Engineering Studies					
583 01JUL06	08NOV06		674		
+ 1.01.02.01.04.38.02 Baseline/Financial Control					
1587 01JUN08	24SEP04		2		
+ 1.01.02.01.04.38.03 Project Tech Support					
1587 01JUN08	24SEP04		2		
+ 1.01.02.01.04.38.04 Regulatory/Environmental Compliance					
1338 01JUN08	30SEP03		250		
+ 1.01.02.01.04.38.05 SST Stabilization Capital Equipment					
281 01JUN08	28MAY99		181		
+ 1.01.02.01.04.38.06 Maintain Emergency Pumping Capability					
958 01JUN08	28MAR02		831		
+ 1.01.02.01.04.38.07 Overground Transfer Lines					
49 01MAR99	06MAY99		1,354		
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					
1,449 01JUN08	10MARD04		140		
+ 1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102					
70 14JUL03	20OCT03		295		
+ 1.01.02.01.04.40.20 Tank Ventilation Sys 241-A Tank Farm					

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Figure 6-5. Single-Shell Tank Interim Stabilization Integrated RL WBS Summary, Base Case. (5 sheets)

Activity ID	Org Der	Early Start	Early Finish	Total Float	RY20FY90FY91FY92FY93FY94FY95FY96FY97FY98FY99FY10FY11FY12FY13
		28MAY99	07JUN99	24	
+ 1.01.02.01.04.40.40	241-A Tank Farm Annual Hydro				
	577 06APR99	17JUL01		903	
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				
	1448 01JUN98	10MAR04		140	
+ 1.01.02.01.04.41.20	Tank Ventilation Sys 241-AX Tank Farm				
	6 17MAY99	24MAY99		124	
+ 1.01.02.01.04.41.40	241-AX Tank Farm Annual Hydro				
	288 08MAY99	22JUN00		1,076	
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 14JUL03	20OCT03		236	
+ 1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106				
	1448 01JUN98	10MAR04		140	
+ 1.01.02.01.04.43.06	Stabilize and Isolate Tank BY-106				
	1281 14APR99	10MAR04		140	
+ 1.01.02.01.04.43.09	Stabilize and Isolate Tank BY-109				
	70 14JUL03	20OCT03		236	
+ 1.01.02.01.04.43.20	Tank Ventilation Sys SST 241-BX Tank Farm				
	6 14MAY99	21MAY99		103	
+ 1.01.02.01.04.43.30	DCRT 244-BX for SST 241-BY Tank Farm				
	450 01OCT99	31JUL01		783	
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				
	749 16MAR01	10MAR04		140	
+ 1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106				
	70 14JUL03	20OCT03		236	
+ 1.01.02.01.04.44.06	Stabilize and Isolate Tank C-106				

Figure 6-5. Single-Shell Tank Interim Stabilization Integrated RL WBS Summary,
Base Case. (3 sheets)

Activity ID	Orig Desc	Early Start	Early Finish	Total Float	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
		70 14JUL03	2003T03	238														
+ 1.01.02.01.04.44.20	Tank Ventilation Sys SST 241-C Tank Farm	8:02APR01	05APR01	85														
1.01.02.01.04.44.30	DCRT 244-CR for SST 241-C Tank Farm																	
1.01.02.01.04.44.30.01	DCRT 244-CR for SST 241-C Tank Farm																	
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	1230 15APR99	10MAR04	140														
+ 1.01.02.01.04.45.02	Stabilize and Isolate Tank S-102	1449 01JUN98	10MAR04	140														
+ 1.01.02.01.04.45.03	Stabilize and Isolate Tank S-103	1449 01JUN98	10MAR04	140														
+ 1.01.02.01.04.45.06	Stabilize and Isolate Tank S-106	1397 14AUG98	10MAR04	140														
+ 1.01.02.01.04.45.07	Stabilize and Isolate Tank S-107	88523MAR00	10MAR04	140														
+ 1.01.02.01.04.45.08	Stabilize and Isolate Tank S-108	70 14JUL03	2003T03	238														
+ 1.01.02.01.04.45.09	Stabilize and Isolate Tank S-109	1011 01MAR00	10MAR04	140														
+ 1.01.02.01.04.45.10	Stabilize and Isolate Tank S-110	803 17MAR00	2003T03	238														
+ 1.01.02.01.04.45.11	Stabilize and Isolate Tank S-111	999 17MAR00	10MAR04	140														
+ 1.01.02.01.04.45.12	Stabilize and Isolate Tank S-112	1061 16DEC99	10MAR04	140														
+ 1.01.02.01.04.45.20	Tank Ventilation Sys SST 241-S Tank Farm	404 04SEP96	14APR00	85														
+ 1.01.02.01.04.45.30	DCRT 244-S for SST 241-S Tank Farm																	

Figure 6-5. Single-Shell Tank Interim Stabilization Integrated RL WBS Summary, Base Case (5 sheets)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
	1 286	01JUN93	16JUL03	303														
+ 1.01.02.01.04.45.40 241-S Tank Farm Annual Hydro																		
	317	02FEB00	04MAY01	853														
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																		
	833	29AUG04	10MAR04	140														
+ 1.01.02.01.04.46.02 Stabilize and Isolate Tank SX-102																		
	795	10JAN04	10MAR04	140														
+ 1.01.02.01.04.46.03 Stabilize and Isolate Tank SX-103																		
	728	18APR01	10MAR04	140														
+ 1.01.02.01.04.46.04 Stabilize and Isolate Tank SX-104																		
	1 449	01JUN93	10MAR04	140														
+ 1.01.02.01.04.46.05 Stabilize and Isolate Tank SX-105																		
	1 113	01OCT93	10MAR04	140														
+ 1.01.02.01.04.46.06 Stabilize and Isolate Tank SX-106																		
	1 449	01JUN93	10MAR04	140														
+ 1.01.02.01.04.46.40 241-SX Tank Farm Annual Hydro																		
	873	01MAR96	15AUG02	530														
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	14JUL03	20OCT03	236														
+ 1.01.02.01.04.47.04 Stabilize and Isolate Tank T-104																		
	1 449	01JUN93	10MAR04	140														
+ 1.01.02.01.04.47.10 Stabilize and Isolate Tank T-110																		
	1 449	01JUN93	10MAR04	140														
+ 1.01.02.01.04.47.11 Stabilize and Isolate Tank T-111																		
	70	14JUL03	20OCT03	236														
+ 1.01.02.01.04.47.30 DCRT 244-TX for SST 241-T Tank Farm																		
	125	01JUN96	09NOV96	0														

Figure 6-5. Single-Shell Tank Intern Stabilization Integrated RL WBS Summary.
Base Case (5 sheets)

Activity ID	Org Dur	Early Start	Early Finish	Total Float	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
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																			
	475	30MAY02	204PR04	111															
+ 1.01.02.01.04.48.03 Stabilize and isolate Tank U-103																			
	738	02APR01	10MAR04	140															
+ 1.01.02.01.04.48.05 Stabilize and isolate Tank U-105																			
	543	01AUG02	28SEP04	0															
+ 1.01.02.01.04.48.06 Stabilize and isolate Tank U-106																			
	348	05MAY03	21SEP04	5															
+ 1.01.02.01.04.48.07 Stabilize and isolate Tank U-107																			
	488	09APR02	10MAR04	140															
+ 1.01.02.01.04.48.08 Stabilize and isolate Tank U-108																			
	830	04SEP01	10MAR04	140															
+ 1.01.02.01.04.48.09 Stabilize and isolate Tank U-109																			
	540	27JUL02	20AUG04	28															
+ 1.01.02.01.04.48.10 Stabilize and isolate Tank U-110																			
	70	14JUL03	20OCT03	238															
+ 1.01.02.01.04.48.11 Stabilize and isolate Tank U-111																			
	565	08DEC01	10MAR04	140															
+ 1.01.02.01.04.48.20 Tank Ventilation Sys SST 241-U Tank Farm																			
	144	09JAN02	26JUL02	310															
+ 1.01.02.01.04.48.30 DCRT 244-U for SST 241-U Tank Farm																			
	754	02APR01	01APR04	124															
+ 1.01.02.01.04.48.40 241-U Tank Farm Annual Hydro																			
	35	23OCT02	12DEC02	480															
1.01.02.01.04.72 SST Stabilization Pumping																			
+ 1.01.02.01.04.72.01 Pumping for Remaining SST's (29)																			
	1,465	01JUN03	01APR04	0															

Figure 6-5. Single-Shell Tank Interim Stabilization Integrated RL WBS Summary, Base Case. (5 sheets)

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 FTE summaries found in this section.

The base case schedule was developed using a manageable ramp up to full operations, uniform funding for the duration of the project, and an orderly demobilization at the completion of work in FY 2004. 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.
- The SST IS Project does not currently possess all pieces of equipment 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.

In order to remove as much pumpable liquid as soon as possible, the Base Case schedule was developed with the strategy to focus on tanks that are currently pumping, and on those tanks in that are not impeded by technical issues such as complex waste (SX and U Farm), Portland Cement layers (BY-105), floating organic solvents (C-103), and AB issues (A-101).

Initially pumping will focus on S-Farm, since there are no technical issues and it will provide good data for evaluation of flammable gas releases during pumping. In addition, there are a number of tanks with large liquid volumes. This work will be paced by the need to modify and install standby exhausters before pumping can be initiated. Pumping will be initiated in 200 East Area when the technology is developed to install a saltwell screen in BY-105, and an authorization basis is approved to pump A-101. To the extent that it does not extend the overall schedule, activities will tend to concentrate in one geographic area at a time (i.e., tank farm) to minimize the overall project costs. The focus will then shift to SX and U Farms as soon as resources become available.

Work scope for the balance of FY 1998 will focus on activities to support the following:

- Maintain pumping operations in SSTs already in progress or near start-up (T-104, T-110).
- Determine the pumpability of SX Farm wastes and, if appropriate, modify the SX-104 dilution system and restart pumping in this tank.

- Prepare and initiate pumping in SX-106, which is ventilated by the SX-Farm sludge cooler.
- Initiate preparations for S-Farm where pumping is scheduled to begin in early FY 1999.
- Maintain a 30-day emergency pumping capability for SSTs.
- Initiate modification to the onsite exhausters to meet the requirements of the AB.
- Initiate engineering to resolve technical issues such as installing the saltwell screen in BY-105.

This schedule, which would complete interim stabilization in 2003, is aggressive. It will present significant logistical, technical, and operational challenges throughout the Hanford Site. It should be noted that this schedule will be extended by 12 months if co-mingling of wastes is disapproved.

6.5 RESOURCES

6.5.1 Base Case Cost by Work Breakdown Structure

Table 6-2 summarizes the base case escalated costs by fiscal year (FY 1998 through FY 2004) 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, General and Administrative, material procurement rate, 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 Costs by Fiscal Year.

Cost	Total	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Total Cost in 1998 Dollars	116,433	12,802	18,829	18,347	19,707	18,579	17,028	11,141
Total Escalation	9,598	0	508	1,003	1,640	2,090	2,426	1,931
Total Escalated Cost	126,031	12,802	19,337	19,350	21,347	20,669	19,454	13,072

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

Table 6-3 Single-Shell Tank Interim Stabilization Base Case 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
1 01 02 01 04 39 01	SST Process Engineering Studies	398	13	2	283	114			
1 01 02 01 04 39 02	Baseline/Final Control	1,180	289	171	178	210	193	82	59
1 01 02 01 04 39 03	Project Management	15,143	1,058	4,334	2,766	2,472	2,285	1,733	1,485
1 01 02 01 04 39 04	Regulatory/Environmental Compliance	8,827	804	1,880	1,702	1,456	1,318	754	733
1 01 02 01 04 39 05	SST Stabilization Capital Equipment	1,808	597	1,208					
1 01 02 01 04 39 06	Maintain SST Emergency Pumping Capability	538	75	137	109	109			
1 01 02 01 04 39 07	Overground Transfer Lines	200		200					
1 01 02 01 04 40 01	Stabilize and Isolate Tank A-101	1,240	46	482	182	182	121	9	218
1 01 02 01 04 40 02	Stabilize and Isolate Tank A-102	214						210	4
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	1,419	147	539	209	230	77	9	218
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	288		55	202				
1 01 02 01 04 43 03	Stabilize and Isolate Tank BY-103	428						420	8
1 01 02 01 04 43 05	Stabilize and Isolate Tank BY-105	2,283	201	1,437	318	82		9	218
1 01 02 01 04 43 06	Stabilize and Isolate Tank BY-106	1,483		727	272	238		9	218
1 01 02 01 04 43 09	Stabilize and Isolate Tank BY-109	214						210	4
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	313			167	146			
1 01 02 01 04 44 03	Stabilize and Isolate Tank C-103	1,802				1,239	335	9	218
1 01 02 01 04 44 05	Stabilize and Isolate Tank C-105	214						210	4
1 01 02 01 04 44 06	Stabilize and Isolate Tank C-106	214						210	4
1 01 02 01 04 44 20	Tank Ventilation Sys 241-C Tank Farm	38				38			
1 01 02 01 04 45 01	Stabilize and Isolate Tank S-101	1,443		718	508			9	218
1 01 02 01 04 45 02	Stabilize and Isolate Tank S-102	2,734	1,200	1,075	232			9	218
1 01 02 01 04 45 03	Stabilize and Isolate Tank S-103	1,748	293	1,158	40			9	218
1 01 02 01 04 45 06	Stabilize and Isolate Tank S-106	1,482	401	579	278			9	218
1 01 02 01 04 45 07	Stabilize and Isolate Tank S-107	1,243			588	431		9	218
1 01 02 01 04 45 08	Stabilize and Isolate Tank S-108	214						210	4
1 01 02 01 04 45 09	Stabilize and Isolate Tank S-109	1,725			1,071	427		9	218

Table 6-3 Single-Shell Tank Interim Stabilization Base Case Cost By Work Breakdown Structure (Unscaled) 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
1 01 02 01 04 45 11	Stabilize and Isolate Tank S-111	1,678			881	378	94	9	218
1 01 02 01 04 45 12	Stabilize and Isolate Tank S-112	1,770			1,035	507	2	9	218
1 01 02 01 04 45 20	Tank Ventilation Sys 241-S Tank Farm	183	38	38	78				
1 01 02 01 04 46 30	DCRT 244-S for SST 241-S Tank Farm	2,308	128	378	388	518	511	382	
1 01 02 01 04 46 40	241-S Tank Farm Annual Hydro	807			202	405			
1 01 02 01 04 48 01	Stabilize and Isolate Tank SX-101	1,885				497	961	188	218
1 01 02 01 04 48 02	Stabilize and Isolate Tank SX-102	2,033				1,382	247	187	218
1 01 02 01 04 48 03	Stabilize and Isolate Tank SX-103	1,574				950	227	180	218
1 01 02 01 04 48 04	Stabilize and Isolate Tank SX-104	798	117	343	110			9	218
1 01 02 01 04 48 05	Stabilize and Isolate Tank SX-105	1,841			317	1,084	201	121	218
1 01 02 01 04 48 06	Stabilize and Isolate Tank SX-106	1,892	1,227	278	180			9	218
1 01 02 01 04 48 40	241-SX Tank Farm Annual Hydro	955		195	357	135	67		
1 01 02 01 04 47 01	Stabilize and Isolate Tank T-101	214						210	4
1 01 02 01 04 47 04	Stabilize and Isolate Tank T-104	446	147	73				9	218
1 01 02 01 04 47 10	Stabilize and Isolate Tank T-110	617	318	74				9	218
1 01 02 01 04 47 11	Stabilize and Isolate Tank T-111	214						210	4
1 01 02 01 04 47 30	DCRT 244-TX for SST 241-T Tank Farm	128	87	42					
1 01 02 01 04 48 02	Stabilize and Isolate Tank U-102	1,581					728	878	280
1 01 02 01 04 48 03	Stabilize and Isolate Tank U-103	2,529				567	1,331	368	244
1 01 02 01 04 48 05	Stabilize and Isolate Tank U-105	1,590					554	544	398
1 01 02 01 04 48 06	Stabilize and Isolate Tank U-106	1,505						967	838
1 01 02 01 04 48 07	Stabilize and Isolate Tank U-107	1,416					791	377	247
1 01 02 01 04 48 08	Stabilize and Isolate Tank U-108	1,900				188	1,088	407	218
1 01 02 01 04 48 09	Stabilize and Isolate Tank U-109	1,877					785	488	404
1 01 02 01 04 48 10	Stabilize and Isolate Tank U-110	214						210	4
1 01 02 01 04 48 11	Stabilize and Isolate Tank U-111	2,182					1,428	517	218
1 01 02 01 04 48 20	Tank Ventilation Sys 241-U Tank Farm	118					118		
1 01 02 01 04 48 30	DCRT 244-U for SST 241-U Tank Farm	1,836				480	202	743	431
1 01 02 01 04 48 40	241-U Tank Farm Annual Hydro	270						270	
1 01 02 01 04 72 01	Pumpout for Remaining SSTs (28)	25,801	847	2,714	5,421	5,190	4,707	8,688	1,186
	REPORT TOTAL	111,763	8,132	18,829	18,347	19,707	19,579	17,026	11,141

DCRT = double-contained recovery tank

FY = fiscal year

RL = U.S. Department of Energy, Rockwell Operations Office

SST = single-shell tanks

WBS = Work Breakdown Structure

6.5.2 Base Case Labor Resources

Table 6-4 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 1,905 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 6-4 Single-Shell Tank Interim Stabilization Base Case 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	FY 2004
1 01 02 01 04 39 01	SST Process Engineering Studies	0.33	0.02	0.14				
1 01 02 01 04 39 02	Baseline/Financial Control	2.69	1.80	1.80	1.89	1.70	0.53	0.53
1 01 02 01 04 39 03	Project Management	2.15	10.47	9.80	8.90	8.35	5.54	4.77
1 01 02 01 04 39 04	Regulatory/Environmental Compliance	22.74	14.35	14.35	12.35	11.08	6.31	6.16
1 01 02 01 04 39 05	SST Stabilization Capital Equipment	11.30	3.68					
1 01 02 01 04 39 06	Maintain SST Emergency Pumping Capability	2.05	1.25	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	1.14	2.94	1.53	1.53	1.02	0.07	0.58
1 01 02 01 04 40 02	Stabilize and Isolate Tank A-102						0.92	0.03
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		0.84	0.84	0.84			
1 01 02 01 04 41 01	Stabilize and Isolate Tank AX-101	3.47	3.77	1.78	1.93	0.65	0.07	0.98
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						1.34	0.07
1 01 02 01 04 43 05	Stabilize and Isolate Tank BY-105	4.57	6.13	2.59	0.87		0.07	0.98
1 01 02 01 04 43 06	Stabilize and Isolate Tank BY-106		5.85	2.28	1.99		0.07	0.98
1 01 02 01 04 43 09	Stabilize and Isolate Tank BY-109						0.92	0.03
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			1.27	1.12			
1 01 02 01 04 44 09	Stabilize and Isolate Tank C-103				9.96	2.82	0.07	0.98
1 01 02 01 04 44 05	Stabilize and Isolate Tank C-105						0.92	0.03
1 01 02 01 04 44 06	Stabilize and Isolate Tank C-108						0.92	0.03
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		5.69	4.20			0.07	0.98
1 01 02 01 04 45 02	Stabilize and Isolate Tank S-102	27.08	9.36	1.97			0.07	0.98
1 01 02 01 04 45 03	Stabilize and Isolate Tank S-103	6.75	10.21	0.34			0.07	0.98
1 01 02 01 04 45 06	Stabilize and Isolate Tank S-106	9.17	4.74	2.33			0.07	0.98
1 01 02 01 04 45 07	Stabilize and Isolate Tank S-107			5.09	3.81		0.07	0.98
1 01 02 01 04 45 08	Stabilize and Isolate Tank S-108						0.92	0.03
1 01 02 01 04 45 09	Stabilize and Isolate Tank S-109			8.63	3.58		0.07	0.98

Table 6-4 Single-Shell Tank Intern Stabilization Base Case 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	FY 2004
1 01 02 01 04 45 11	Stabilize and Isolate Tank S-111			6 92	3 15	0 79	0 07	0 98
1 01 02 01 04 45 12	Stabilize and Isolate Tank S-112			8 45	4 25	0 02	0 07	0 98
1 01 02 01 04 45 20	Tank Ventilation Sys 241-S Tank Farm	1 08	0 37	0 73				
1 01 02 01 04 45 30	DCRT 244-S for SST 241-S Tank Farm	2 14	2 19	2 23	3 38	3 34	2 44	
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				4 27	7 37	1 54	0 98
1 01 02 01 04 46 02	Stabilize and Isolate Tank SX-102				10 69	2 03	1 53	0 98
1 01 02 01 04 46 03	Stabilize and Isolate Tank SX-103				7 44	1 88	1 47	0 98
1 01 02 01 04 46 04	Stabilize and Isolate Tank SX-104	2 99	2 97	0 94			0 07	0 98
1 01 02 01 04 46 05	Stabilize and Isolate Tank SX-105			2 45	6 41	1 64	0 99	0 98
1 01 02 01 04 46 06	Stabilize and Isolate Tank SX-106	28 74	2 34	1 32			0 07	0 98
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 92	0 03
1 01 02 01 04 47 04	Stabilize and Isolate Tank T-104	3 70	0 82				0 07	0 98
1 01 02 01 04 47 10	Stabilize and Isolate Tank T-110	7 83	0 62				0 07	0 98
1 01 02 01 04 47 11	Stabilize and Isolate Tank T-111						0 92	0 03
1 01 02 01 04 47 30	DCRT 244-TX for SST 241-T Tank Farm	1 80	0 29					
1 01 02 01 04 48 02	Stabilize and Isolate Tank U-102					5 83	4 87	1 33
1 01 02 01 04 48 03	Stabilize and Isolate Tank U-103				4 27	10 88	3 25	1 20
1 01 02 01 04 48 05	Stabilize and Isolate Tank U-105					5 82	4 34	2 48
1 01 02 01 04 48 06	Stabilize and Isolate Tank U-106						7 99	4 43
1 01 02 01 04 48 07	Stabilize and Isolate Tank U-107					8 37	3 06	1 22
1 01 02 01 04 48 08	Stabilize and Isolate Tank U-108				1 53	9 00	3 42	0 98
1 01 02 01 04 48 09	Stabilize and Isolate Tank U-109					6 29	4 18	2 34
1 01 02 01 04 48 10	Stabilize and Isolate Tank U-110						0 92	0 03
1 01 02 01 04 48 11	Stabilize and Isolate Tank U-111					11 38	4 34	0 98
1 01 02 01 04 48 20	Tank Ventilation Sys 241-U Tank Farm					1 10		
1 01 02 01 04 48 30	DCRT 244-U for SST 241-U Tank Farm				4 01	1 39	4 94	3 01
1 01 02 01 04 48 40	241-U Tank Farm Annual Hydro						2 56	
1 01 02 01 04 72 01	Pumping for Remaining SST's (28)	25 16	27 12	54 35	51 26	46 51	56 44	11 81
	REPORT TOTAL	172 81	124 28	146 07	157 20	146 62	131 10	62 41

DCRT = double-contained receiver tank

FY = fiscal year

RL = U.S. Department of Energy Richland Operations Office

SST = single-shell tank

WBS = Work Breakdown Structure

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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.

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.

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. 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 intrusion prevention activities such as disconnecting, blanking, or capping pipelines from tank systems and installing barriers to avoid inadvertent liquid addition into interim-stabilized SSTs.

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 1997a) 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; 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 defensible 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 1997a).

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 milestones 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.

No major equipment purchases (exhausters, flammable gas monitors, Portable Instrument Controls) are anticipated to support the Base Case.

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 Director
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 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

Figure 8-1 Example of Single-Shell Tank Activities

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 1997b) 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 1997b), 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.

3.2 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.

3.2.1 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* (Pock 1998) and the implementing procedures contained in HNF-IP-0642, *TWRS Administration* (LMHC 1997b). 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.

3.2.2 Engineering Process

The engineering process is documented in HNF-1947, *Tank Waste Remediation System Engineering Plan* (Rifaay 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 multidisciplinary 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" (Froeman 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 1997b) and the Quality Assurance organization. An implementation matrix in the Quality Assurance Program Plan (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" (LMHC 1997b), *TWRS Systems Engineering Management Plan* (Peck 1998); and WHC-IP-0842, Volume IV, Section 2.7, "TWRS Decision Management Procedure" (LMHC 1997b). 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 1997b) 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 1997b), 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 1997b);

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.

5.6 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.

3.7 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 1997b).

The SST IS Project interfaces primarily will be documented and controlled by the MYWP (LMHC 1997a) 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 SST 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 1997b).

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.

3.3.2 Public Participation

Any public participation will be handled per the HNF-MP-012, *Integrated Hanford Communications Plan* (FDH 1997c) 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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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 3.2×10^3 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.

Reference

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.

Interim 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

Fiscal Year	1998	1999	2000	2001	2002	2003	2004
Number of Tanks Stabilized	1	1	6	5	4	5	7

1998(FY) - 2004(FY)
29 Stabilized Tanks (148 Total)

Figure A-1. Interim 119 Stabilized Tanks.

Accumulated Gallons Pumped (1979 - 2004)

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

Fiscal Year	1998	1999	2000	2001	2002	2003	2004
Gallons (K) Pumped	440	1 072	1 052	1 209	1 087	101	

1998(FY) - 2004(FY)

6,920 (K) Gallons to be Pumped

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 (SST) Interim Stabilization (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 remove 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 to 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 (Tank Waste Remediation System Environmental Impact Statement). 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
Solwell 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					
-Slurcing	X		Current retrieval baseline	\$20-\$80 million	None
-"Rammed 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 slurcing. May be required to complete SST waste retrieval

N/A = not applicable

SST = single-shell tank

SWP = solwell pump

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 enhance 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 \$1 million 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),

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

where

q_w = flow rate into well (barrels)

k = constant

h = height of solids layer (ft)

μ = fluid viscosity (centipoise)

p_s = pressure at tank wall (psig)

p_w = pressure at salt well (psig)

r_o = 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 Gunnite and Associated 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.

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.

**Ratio of Flow
Compared to
a 10 Inch
Diameter Well**

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

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 100 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 assumes co-mingling of complexed, transuranic (TRU) complexed, and noncomplexed wastes. DOE has not approved co-mingling of noncomplexed, complexed, and TRU wastes.

The major vulnerability is that one of the complexed tanks may begin leaking before DOE approval is received. To maintain segregation, all noncomplexed waste saltwells would need to be shut down while this tank was emergency pumping. The remaining complexed tanks may 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.

BS.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.

BS.1 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.

B5.2 ORGANIC COMPLEXANT CO-MINGLING

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 produce 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 whenever 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 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)	\$0.5-1.0M
S&SX Direct Transfer to SY-102	14 tanks/29 180 DORT 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)	\$5-10M
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	Minimum 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

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)
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-\$30M (one less tank to sluice)

DCRT = double-contained receiver tank

M = million

N/A = not applicable

TBD = to be determined

TRU = transference

APPENDIX C

**SINGLE-SHELL TANK INTERIM STABILIZATION
EXTERNALLY IMPOSED REQUIREMENTS**

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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)**

External Code or Regulation	Title	Comment (significant interest areas)
	Standards for Protection Against Radiation	- Access controls
10 CFR 61	Licensing Requirements for Land Disposal of Radioactive Waste	<ul style="list-style-type: none"> - 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 particular waste 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 obligations 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Public dose limits. Management and storage of spent nuclear fuel, high-level, or transuranic radioactive wastes annual dose equivalent 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	<p>- Storage requirements - Hazardous wastes must not be placed in tank system if they could cause the tank or associated auxiliary equipment and containment system to rupture, leak, corrode, or otherwise fail</p> <p>- Storage requirements - The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank to containment systems</p> <p>- Storage requirements - Ignitable or reactive waste must not be placed in tank systems, unless (1) the waste is treated, rendered, or moved 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 requirements for protective distances from the public</p> <p>- 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</p> <p>- 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</p> <p>- 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</p>

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	<ul style="list-style-type: none"> - Secondary containment - Spill prevention and controls - Incompatible/ignitable wastes
40 CFR 268	Land Disposal Restrictions	<ul style="list-style-type: none"> - Applicable exceptions for which otherwise prohibited wastes may be disposed of in a landfill - Certain wastes prohibited from land disposal - Applicability of treatment standards

CPR = 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 173-300	Dangerous Waste Regulations	--
WAC 173-400	General Regulations for Air Pollution Sources	- Nonradioactive air emissions, new source review/apportionment 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 173-490	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 173-490

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 2, 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-BQDW(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, MSRM-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 removed for immobilization.
HSP FAC C	Material Category Goal - Facilities (C) 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

HSTD = *Hanford Site Testimonial Baseline Database*

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
CLUP 532.200	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 532 INT 3.200	Area/Central Plateau EM Goal C 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 532 INT 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 532 b	200 Area/Central Plateau EM Goal - Tank Waste Retrieve and vitrify. Dispose of HLW offsite. Onsite disposal of LLW. Tank farms closed.
CLUP 532 b INT	200 Area/Central Plateau EM Goal - Tank Waste (A) Tank waste will be retrieved from 200 Area underground waste storage tanks.
CLUP 532 b INT 2	200 Area/Central Plateau EM Goal - Tank Waste (B) Retrieved tank waste will be vitrified to make disposal ready.
CLUP 532 b INT 3	200 Area/Central Plateau EM Goal - Tank Waste C Vitrified HLW will be disposed of offsite.
CLUP 532 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 leak 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.

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: Mingle (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 sludging retrieval of Tank C-106 to resolve the high-level safety issue	10/31/1997
TPA M 45 3 A b	Tank C-106(b): Initiate sludging 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
TPA M 45 5 T 5	SST Retrieval (2007): Initiate tank waste retrieval from five additional SSTs	9/30/2007

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 6	SST Retrieval (2006) 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
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

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 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 slowing 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

HSTD = Hanford Site Technical Baseline Database

SST = single-shell tank

Tri-Party Agreement = Hanford Federal Facility Agreement and Consent Order

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**

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
86TAS01	0	26SEP04		0	U-4100 COMPL SST INTERIM STABILIZATION
1.01					
1.01.02					
1.01.02.01					
1.01.02.01.04					
1.01.02.01.04.38 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	60	01JUL98	26SEP98	1,207	Eng Study Saltwell Screen FY98 4th Quarter
23070H2	60	01SEP98	24NOV98	974	Eng Study Saltwell Screen FY99 1st Quarter
1.01.02.01.04.39.01.02 Water Spray Engineering Study					
23070H3	60	28NOV98	24FEB00	974	Eng Study DCRT Flare Gas Flow Rate 1st Qtr FY99
1.01.02.01.04.39.01.03 Radial Channels Engineering Study					
23070H4	60	28FEB00	18MAY00	974	Eng Study MS for 244-S 1st Qtr FY99
1.01.02.01.04.39.01.04 Run Analysis Engineering Study					
23070H5	60	18MAY00	15AUG00	974	Eng Study, Run Analysis FY98 4th Quarter
1.01.02.01.04.39.01.05 Material AB Amendment Engineering Study					
23070H6	60	15AUG00	08NOV00	974	Eng Study - Material AB Amendment FY98 4th Qtr
1.01.02.01.04.39.02 Baseline/Financial Control					
1.01.02.01.04.39.02.01 Baseline Development/Financial Change Contr					
23070B1	85	01JUN98	30SEP98	2	Baseline/Financial Control FY98
23070B2	251	01OCT98	30SEP99	2	Baseline/Financial Control FY98
23070B3	251	01OCT99	29SEP00	2	Baseline/Financial Control FY00
23070B4	251	02OCT00	26SEP01	2	Baseline/Financial Control FY01

Project Start: 08/01/98
 Project Finish: 26/09/01
 Only Data: 01/01/00
 File Date: 01/01/00

08/01/98
 26/09/01
 01/01/00
 01/01/00

08/01/98
 26/09/01
 01/01/00
 01/01/00

Appendix D Single Shell Tank
 Interim Stabilization Investigation
 Shell Scenario - Base Case

08/01/98

Rev. 1

Rev.	Revised	Revised
1		
2		
3		
4		
5		

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23070B5	250	01 OCT 01	30 SEP 02	2															
23070B6	251	01 OCT 02	30 SEP 03	2															
23070B7	248	01 OCT 03	24 SEP 04	2															
1.01.02.01.04.39.03 Project Tech Support																			
1.01.02.01.04.39.03.01 Project Tech Support																			
23070N1	35-01	JUN 98	30 SEP 98	2															
23070N2	251	01 OCT 98	30 SEP 99	2															
23070N3	251	01 OCT 99	28 SEP 00	2															
23070N4	251	03 OCT 00	28 SEP 01	2															
23070N5	250	01 OCT 01	30 SEP 02	2															
23070N6	251	01 OCT 02	30 SEP 03	2															
23070N7	248	01 OCT 03	24 SEP 04	2															
1.01.02.01.04.39.03.02 Management Assessments (Internal)																			
23070M1	35-01	JUN 98	30 SEP 98	2															
23070M2	251	01 OCT 98	30 SEP 99	2															
23070M3	251	01 OCT 99	28 SEP 00	2															
23070M4	251	03 OCT 00	28 SEP 01	2															
23070M5	250	01 OCT 01	30 SEP 02	2															
23070M6	251	01 OCT 02	30 SEP 03	2															
23070M7	248	01 OCT 03	24 SEP 04	2															
1.01.02.01.04.39.03.03 External Assessments																			
23070E1	35-01	JUN 98	30 SEP 98	2															
23070E2	251	01 OCT 98	30 SEP 99	2															
23070E3	251	01 OCT 99	28 SEP 00	2															
23070E4	251	03 OCT 00	28 SEP 01	2															

Sheet 1 of 1

Activity ID	Org Div	Early Start	Early Finish	Total Float	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23070E6	250	01OCT01	30SEP02	2																
23070E6	251	01OCT02	30SEP03	2																
23070E7	248	01OCT03	24SEP04	2																
1.01.02.01.04.38.03.04 Utilities And Assessments																				
23070Q1	85	01JUN98	30SEP98	2																
23070Q2	261	01OCT98	30SEP99	2																
23070Q3	251	01OCT99	28SEP00	2																
23070Q4	251	02OCT00	28SEP01	2																
23070Q5	260	01OCT01	30SEP02	2																
23070Q6	251	01OCT02	30SEP03	2																
23070Q7	248	01OCT03	24SEP04	2																
1.01.02.01.04.39.03.05 General/Saltwell Operations Training																				
23070R1	85	01JUN98	30SEP98	2																
23070R2	251	01OCT98	30SEP99	2																
23070R3	281	01OCT99	28SEP00	2																
23070R4	251	02OCT00	28SEP01	2																
23070R5	250	01OCT01	30SEP02	2																
23070R6	281	01OCT02	30SEP03	2																
23070R7	248	01OCT03	24SEP04	2																
1.01.02.01.04.39.04.01 Regulatory/Environmental Compliance																				
1.01.02.01.04.39.04.01 FEB Support																				
23070K1	85	01JUN98	30SEP98	2																
23070K2	251	01OCT98	30SEP99	2																
23070K3	251	01OCT99	28SEP00	2																
23070K4	281	02OCT00	28SEP01	2																

Activity ID	Orig Dsr	Early Start	Early Finish	Total Float	FY98	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23070R3	250	01OCT01	30SEP02	2															
23070M6	251	01OCT02	30SEP03	2															
1 01 02 01 04 39 04 02 ESH&Q Oversight																			
23070J1	83	01JUN98	30SEP98	2															
23070J2	251	01OCT98	30SEP99	2															
23070J3	251	01OCT99	28SEP00	2															
23070J4	251	02OCT00	28SEP01	2															
23070J5	250	01OCT01	30SEP02	2															
23070J6	251	01OCT02	30SEP03	2															
1 01 02 01 04 39 04 06 Environmental Compliance																			
23006A	30	01JUN98	14JUL98	743															
23006B	80	01JUN98	25AUG98	1 029															
23006C	40	01JUN98	12JUN98	1 579															
23006A	251	15JUL98	14JUL98	744															
23025A	20	26AUG98	23SEP98	19															
23030A	60	01JUN98	25AUG98	19															
23070F1	85	01JUN98	30SEP98	2															
23070F2	251	01OCT98	30SEP99	2															
23070F3	251	01OCT99	28SEP00	2															
23070F4	251	02OCT00	28SEP01	2															
23070F5	250	01OCT01	30SEP02	2															
23070F6	251	01OCT02	30SEP03	2															
23075A	3	01JUN98	08JUN98	13															
23075B1	10	04JUN98	17JUN98	23															

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY90FY91FY92FY93FY94FY95FY96FY97FY98FY99 FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13
2307582	5	16JUN98	24JUN98	23	<0 1 NOC Review by FDH
2307583	5	26JUN98	01JUL98	23	<0 1 NOC Review by RL
2307584	10	06JUL98	17JUL98	23	<0 1 NOC Review Meetings
2307585	40	20JUL98	14SEP98	1 318	<0 1 NOC Review by WDOH II
23075C1	20	01JUN98	01JUL98	16	Write Review SX NOC
23075C2	5	06JUL98	10JUL98	18	SX NOC Review by FDH
23075C3	5	13JUL98	17JUL98	16	SX NOC Review by RL
23075C4	10	20JUL98	31JUL98	18	SX NOC Review Meetings
23075C6	40	03AUG98	28SEP98	1 506	SX NOC Review by WDOH II
23075D1	20	04JUN98	01JUL98	13	Write Review >0 1 NOC
23075D2	5	08JUL98	10JUL98	13	>0 1 NOC Review by FDH
23075D3	5	13JUL98	17JUL98	13	>0 1 NOC Review by RL
23075D4	10	20JUL98	31JUL98	13	>0 1 NOC Review Meetings
23075D5	40	03AUG98	28SEP98	1 506	>0 1 NOC Review by WDOH
23075E1	20	04JUN98	01JUL98	653	Write Review C 103 NOC
23075E2	5	06JUL98	10JUL98	683	C 103 NOC Review by FDH
23075E3	5	13JUL98	17JUL98	653	C 103 NOC Review by RL
23075E4	10	20JUL98	31JUL98	653	C 103 NOC Review Meetings
23075E5	40	03AUG98	28SEP98	1 506	C 103 NOC Review by WDOH
230806	120	20JUL98	11JAN99	23	RL Approval of <0 1 NOC
23080C	40	03AUG98	28SEP98	18	RL Approval of SX NOC
23080D	120	03AUG98	25JAN99	13	RL Approval of <0 1 NOC
23080E	120	03AUG98	28JAN99	643	RL Approval of C 103 NOC
1 01 02 01 04 39 04 06 Corrective Action Tracking & Support					

Activity ID	Orig. Date	Early Start	Early Finish	Total Float		FY98FY99FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13
23070C1	251-01JUN98	30SEP98		2		Corrective Action Tracking FY98
23070C2	251-01OCT98	30SEP98		2		Corrective Action Tracking FY99
23070C3	251-01OCT99	29SEP00		2		Corrective Action Tracking FY00
23070C4	251-03OCT00	28SEP01		2		Corrective Action Tracking FY01
23070C5	250-01OCT01	30SEP02		2		Corrective Action Tracking FY02
23070C6	251-01OCT02	30SEP03		2		Corrective Action Tracking FY03
1.01.02.01.04.39.04.07 Procedures/Safety Documentation						
23070P1	251-01JUN98	30SEP98		2		Review/Update Procedures/Safety Doc FY98
23070P2	251-01OCT98	30SEP99		2		Review/Update Procedures/Safety Doc FY99
23070P3	251-01OCT99	29SEP00		2		Review/Update Procedures/Safety Doc FY00
23070P4	251-03OCT00	28SEP01		2		Review/Update Procedures/Safety Doc FY01
23070P5	250-01OCT01	30SEP02		2		Review/Update Procedures/Safety Doc FY02
23070P6	251-01OCT02	30SEP03		2		Review/Update Procedures/Safety Doc FY03
1.01.02.01.04.39.08 SST Stabilization Capital Equipment						
1.01.02.01.04.39.05.01 SST Stabl Capital Equip Procurement/Upgrad						
230507B	251-01JUN98	28MAY99		131		Design and Upgrade Existing PIC Skids
230508	115-01JUN98	11NOV98		82		Task - Design Exhausts/Vent. Sys. On-Site (Sea)
230509	30-12NOV98	27JAN99		62		Procurement Bid
2305082	35-26JAN99	18MAR99		87		Procure Supporting Equipment
2305083	30-28JAN99	06APR99		82		Procure GEMs/CAMs
2305084	30-28FEB99	06APR99		62		Feb Exhausts
2305085	20-06APR99	10MAY99		82		Test and Inspect
1.01.02.01.04.39.06 Maintain Emergency Pumping Capability						
1.01.02.01.04.39.06.01 Maintain Emergency Pumping Capability						
23060A	120-01JUN98	18NOV98		1488		Maintain Emerg. Pumping Documentation FY98

Activity ID	Orig Dsr	Early Start	Early Finish	Total Float	
23060B	120	01JUN98	18NOV98	1459	Maintain Emerg Pumping Equip/Calibrations FY98
23060C	120	01OCT98	28MAR99	1354	Maintain Emerg Pumping Documentation FY98
23060D	120	01OCT98	25MAR99	1354	Maintain Emerg Pumping Equip/Calibrations FY99
23060E	120	01OCT98	24MAR00	1133	Maintain Emerg Pumping Documentation FY00
23060F	120	01OCT99	24MAR00	1133	Maintain Emerg Pumping Equip/Calibrations FY00
23060G	120	02OCT00	28MAR01	852	Maintain Emerg Pumping Documentation FY01
23060H	120	02OCT00	26MAR01	852	Maintain Emerg Pumping Equip/Calibrations FY01
23060J	120	01OCT01	25MAR02	631	Maintain Emerg Pumping Documentation FY02
23060K	120	01OCT01	26MAR02	631	Maintain Emerg Pumping Equip/Calibrations FY02
1.01.02.01.04.39.07 Overground Transfer Lines					
1.01.02.01.04.39.07.01 Installation Overground Transf. Lines					
23060A	3	01MAR99	09MAR99	1354	Workdown For Overground Xfr Line (OGT)
23060B	15	04MAR99	24MAR99	1354	Write Installation EONs
23060C	10	04MAR99	17MAR99	1382	Fab EON Jumpers/Cover Plates
23060D	20	25MAR99	21APR99	1354	OGT Work Package Planning Case 2
23060E	20	18MAR99	14APR99	1382	Fab Pt Jumpers/Covers
23060F	3	23APR99	26APR99	1354	Perform In Shop Pressure Testing
23060G	3	27APR99	28APR99	1354	Install OGT System Field Work
23060J	5	30APR99	06MAY99	1354	Perform Hydro Test Above Grnd Xfr Line
23060K	20	29MAR99	21APR99	1354	Procure Material
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	38	18MAR98	08MAY98	19	Tank A 101 Instl Den - Dilution System
23110C	15	07MAY98	27MAY98	19	Tank A 101 Fab Dilution System (199)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23121A		06 01JUN98	15AUG98	140															Tank A 101 Eval Data to Other FG2 Tanks
23125A		42 04JAN99	05MAR99	49															Contractor Submittal Coordinated with LNL
23129B		21 06MAY98	07AUG98	49															Tier II Comment RespSER Prep
23129C		42 02APR99	01JUN99	49															Tier III Comment RespSER Modification
23129D		10 02JUN99	16JUN99	49															Manager Approval
23130D		3 04JAN99	06JAN99	126															Tank A-101 FG4 Perform OTP
231405		6 08JUN99	16JUN99	24															Tank A 101 (OTP) Exhauster
23142A		10 28MAY98	11JUN98	18															Tank A-101 Diabon Sys Planning
23142B		6 14JUN99	21JUN99	19															Tank A-101 Stage Materials and Install
23142D		1 22JUN99	22JUN99	19															Tank A-101 Functional Test
23150C		30 04JAN99	12FEB99	99															Tank A-101 Upgr Infr Leak Detectors
23154A1		3 01JUN98	03JUN98	13															Tank A 101 Review/Verify Profile Shx Complete
23154A3		6 15JUL99	22JUL99	13															Tank A 101 Compl Compatibility Compliance Table
23154A6		3 23JUL98	27JUL98	13															Tank A 101 Write/Review Issue White Paper
23154A7		5 28JUL99	03AUG99	13															Tank A 101 Perform Assessmnt/Rwd/Approve Pkg
23154A8		5 04AUG98	10AUG98	13															Tank A-101 Management review & approval
23154B1		2 01JUN99	02JUN99	13															Tank A-101 Review ANOVA Results
23154B2		5 03JUN99	09JUN99	13															Tank A 101 Gather Process Data (EVA/FLOWY Ratio)
23154B3		9 16JUN99	18JUN99	13															Tank A-101 Perform Calculations
23154B4		3 17JUN99	21JUN99	13															Tank A 101 Prepare Appendix to SD
23154B5		15 22JUN98	14JUL98	13															Tank A 101 Write Supporting Document
23158D		12 21MAY98	10JUN98	19															Tank A-101 Perform OTP
23156E		10 06JUN99	22JUN99	19															Tank A-101 OTP Closeout

Activity ID	Orig Per	Early Start	Early Finish	Total Float	
23162E	2	04JAN99	04JAN99	136	
23164B	1	22JUN99	22JUN99	19	
23164C	4	23JUN99	28JUN99	19	
23164D	7	28JUN99	28JUN99	19	
23172A	20	30JUN99	29JUL99	19	
23172B	2	08AUG99	10AUG99	13	
23172C	2	11AUG99	12AUG99	13	
1.01.02.01.04.40.01.02 Pump Tank A-101					
23172D1	1003	01SEP99	30MAY02	0	
23172D2	590	01SEP99	31MAY02	584	
1.01.02.01.04.40.01.03 SWP System Maint & Operability Tank A-101					
23168A	590	01SEP99	31MAY02	584	
23168B	590	01SEP99	31MAY02	584	
1.01.02.01.04.40.01.04 Isolation & Inhibition Prevention Tank A-101					
23178A1	5	24OCT03	30OCT03	0	
23178A2	1	31OCT03	31OCT03	36	
23178B1	65	31OCT03	29DEC03	0	
23178B2	2	24DEC03	29DEC03	0	
23178B3	10	30DEC03	13JAN04	0	
23180A	20	19SEP03	30OCT03	48	
23180B	10	03NOV03	14NOV03	37	
23180C	10	14JAN04	27JAN04	0	
23180D	10	28JAN04	10FEB04	0	
23180E	20	11FEB04	10MAR04	0	
1.01.02.01.04.40.02 Stabilize and Isolate Tank A-102					

1.01.02.01.04.40.02.01 Tank A-101 Pri Impact Mod Cover Bkts Restoration

Tank A-101 Stage/Prep Equipment

Tank A-101 Perf Lance/Inlet Screen

Tank A-101 Restoration

Tank A-101 Write Xir Procedure for SW Pumping

Tank A-101 Perform Mgt Assessment Pre-Start

Tank A-101 Perform Pre-start for SW Pumping

Pump Tank A-101

Tank A-101 Perf Weekly Flush during SW Pumping

Tank A-101 (Annual) CM

Tank A-101 (Annual) PM

Tank A-101 Prepare WP for In-Tank Video

Tank A-101 Perform In-Tank Video

Tank A-101 Evaluate SW Pumping Data

Tank A-101 Evaluate In-Tank Video Data

Tank A-101 Prep Josef Lellan/Declare Complete

Tank A-101 Pri Isolation Design

Tank A-101 Isolation Planning

Tank A-101 Isolation Stage Equipment

Tank A-101 Isolation Work

Tank A-101 Isolation Complete Documentation

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
1.01.02.01.04.40.02.04 Isolation & Intrusion Prevention Tank A-102																					
23085B1	50	14JUL03*	22AUG03	238																	
23085B2	10	28JUL03	08AUG03	248																	
23085B3	10	26AUG03	06SEP03	238																	
23085B4	10	08SEP03	22SEP03	238																	
23085B5	20	23SEP03	26OCT03	238																	
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	8	28MAY98	07JUN98	24																	
1.01.02.01.04.40.10 241-A Tank Farm Annual Hydro																					
1.01.02.01.04.40.10.01 241-A Tank Farm Annual Hydro																					
23174A	15	01APR98*	21APR98	803																	
23174B	4	01APR98	06APR98	814																	
23174C	6	22APR98	28APR98	808																	
23174D	3	29APR98	03MAY98	803																	
23174E	2	05MAY98	08MAY98	803																	
23174F	18	05MAY00	25MAY00	803																	
23174G	4	05MAY00	10MAY00	814																	
23174H	6	26MAY00	02JUN00	808																	
23174J	3	05JUN00	07JUN00	803																	
23174K	2	08JUN00	09JUN00	803																	
23174M	19	12JUN01	02JUL01	803																	
23174N	4	12JUN01	15JUN01	814																	
23174P	5	03JUL01	10JUL01	803																	
23174Q	3	17JUL01	13JUL01	808																	
Tank A-102 Isolation Design																					
Tank A-102 Isolation Planning																					
Tank A-102 Isolation Stage Equipment																					
Tank A-102 Isolation Work																					
Tank A-102 Isolation Complete Documentation																					
Tank A-101 Installation & Tie-In																					
Farm A Annual Hydro - Planning (FY99)																					
Farm A Annual Hydro - Stage Equipment (FY99)																					
Farm A Annual Hydro - Set Up (FY99)																					
Farm A Annual Hydro - Perform Hydro Test (FY99)																					
Farm A Annual Hydro - Reconf Pda/Restore (FY99)																					
Farm A Annual Hydro - Planning (FY00)																					
Farm A Annual Hydro - Stage Equipment (FY00)																					
Farm A Annual Hydro - Set Up (FY00)																					
Farm A Annual Hydro - Perform Hydro Test (FY00)																					
Farm A Annual Hydro - Reconf Pda/Restore (FY00)																					
Farm A Annual Hydro - Planning (FY01)																					
Farm A Annual Hydro - Stage Equipment (FY01)																					
Farm A Annual Hydro - Set Up (FY01)																					
Farm A Annual Hydro - Perform Hydro Test (FY01)																					

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Activity ID	Orig Dnr	Early Start	Early Finish	Total Float	
23174R		216JUL01	17JUL01	503	
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		3511JUN99	02AUG99	21	Tank AX 101 Install Den Dilution System
23215C		1503AUG99	23AUG99	21	Tank AX 101 Fill Dilution System (1)
23223D		2801JUN98	13JUL98	274	Tank AX 101 Analyze Grab Sample
23225E		2214JUL98	12AUG98	274	Tank AX 101 Issue Lab Analysis Final Report
23225F		113AUG98	13AUG98	274	Tank AX 101 Enter Lab Data into TCD
23230A		1011JUN99	24JUN99	58	Tank AX 101 FGM Planning
23230B		525JUN99	01JUL99	58	Tank AX 101 FGM Install
23230C		208JUL99	12JUL99	58	Tank AX 101 FGM Perform Calibration
23230D		302JUL99	06JUL99	58	Tank AX 101 FGM Perform QTP
23240A		1003MAY99	14MAY99	124	Tank AX 101 Exhauster Planning
23240B		610MAY99	14MAY99	124	Tank AX 101 Stage Materials
23240C		825MAY99	02JUN99	124	Tank AX 101 (QTP) Exhauster
23242A		1024JUG99	07SEP99	21	Tank AX 101 Dilution Sys Planning
23242B		608SEP99	15SEP99	21	Tank AX 101 Stage Materials and Install
23242D		116SEP99	16SEP99	21	Tank AX 101 Functional Test
23245B		2004JUN99	128JUN99	86	Tank AX 101 Upgrade/Install Test PIC
23254A1		302AUG99	04AUG99	33	Tank AX 101 Review/Verify Prodc Btl Complete
23254A6		814SEP99	27SEP99	33	Tank AX 101 Compl Competability Compliance Table
23254A8		922SEP99	24SEP99	33	Tank AX 101 White/Review Issue White Paper
23254A7		627SEP99	07OCT99	33	Tank AX 101 Perform Assessment/Review/Approve Pkg

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
2325408	6	04OCT99	08OCT99	33																					
2325461	2	02AUG99	03AUG99	33																					
2325482	3	04AUG99	06AUG99	33																					
2325483	5	11AUG99	17AUG99	33																					
2325484	3	18AUG99	20AUG99	33																					
2325485	14	23AUG99	13SEP99	33																					
232549A	10	07JUN99	18JUN99	60																					
232549B	10	07JUN99	18JUN99	60																					
232549D	12	23JUN99	12JUL99	58																					
232549E	10	02SEP99	16SEP99	21																					
23262A	20	03MAY99	28MAY99	89																					
23262B	1	01JUN99	01JUN99	89																					
23262C	3	02JUN99	04JUN99	89																					
23262D	1	07JUN99	07JUN99	89																					
23262E	2	08JUN99	09JUN99	89																					
23264A	10	02SEP99	16SEP99	21																					
23264B	1	17SEP99	17SEP99	21																					
23264C	4	20SEP99	23SEP99	21																					
23264D	1	24SEP99	24SEP99	21																					
23272A	20	27SEP99	23OCT99	21																					
23272B	2	25OCT99	28OCT99	21																					
23272C	2	27OCT99	28OCT99	21																					
1.01.02.01.04.41 01.02 Pump Tank AX-101																									
23272D1	783	01DEC99	31JAN02	0																					
Pump Tank AX-101																									

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
23272B2	545 01DEC99	01FEB02		667
1.01.02.01.04.41.01.03 SWP System Maint & Operability Tank AX-101				
23268A	545 01DEC99	01FEB02		667
23268B	545 01DEC99	01FEB02		667
1.01.02.01.04.41.01.04 Isolation & Intrusion Prevention Tank AX-101				
231M9	0	10MAR04		0
23278A1	5 24OCT03	30OCT03		0
23278A2	1 31OCT03	31OCT03		35
23278B1	60 31OCT03	29DEC03		0
23278B2	2 24DEC03	29DEC03		0
23278B3	10 30DEC03	13JAN04		0
23280A	30 18SEP03	30OCT03		48
23280B	10 03NOV03	14NOV03		37
23280C	10 14JAN04	27JAN04		0
23280D	10 28JAN04	10FEB04		0
23280E	20 11FEB04	10MAR04		0
23280S	0	10MAR04		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				
23240B	8 17MAY98	24MAY98		124
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	10 03MAY98	14MAY98		1 077
23274B	1 03MAY98	08MAY98		1 088
23274C	2 17MAY98	18MAY98		1 077

FY99FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13

Tank AX-101 Perf Weekly Flush during SW Pumping

Tank AX-101 (Annual) CM

Tank AX-101 (Annual) PM

Tank A-101 Tank Stabilization/Isolation Compl

Tank AX-101 Prepare WP for In Tank Video

Tank AX-101 Perform In Tank Video

Tank AX-101 Evaluate SW Pumping Data

Tank AX-101 Evaluate In-Tank Video Data

Tank AX-101 Prep Joint Letter/Decision Complete

Tank AX-101 Pit Isolation Design

Tank AX-101 Isolation Planning

Tank AX-101 Isolation Stage Equipment

Tank AX-101 Isolation Work

Tank AX-101 Isolation Complete Documentation

Tank AX-101 Tank Stabilization/Isolation Compl

Tank AX-101 Installation & Tie In

Farm AX Annual Hydro - Planning (FY99)

Farm AX Annual Hydro - Stage Equipment (FY99)

Farm AX Annual Hydro - Set Up (FY99)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
23274D	2	18MAY99	20MAY99	1.077	Farm AX Annual Hydro - Perform Hydro Test (FY99)
23274E	1	21MAY99	21MAY99	1.077	Farm AX Annual Hydro - Report P&R/Restore (FY99)
23274F	10	23MAY99	06JUN00	1.077	Farm AX Annual Hydro - Planning (FY00)
23274G	1	23MAY99	23MAY99	1.086	Farm AX Annual Hydro - Stage Equipment (FY00)
23274H	2	07JUN00	08JUN00	1.077	Farm AX Annual Hydro - Set Up (FY00)
23274J	2	08JUN00	12JUN00	1.077	Farm AX Annual Hydro - Perform Hydro Test (FY00)
23274K	1	13JUN00	13JUN00	1.077	Farm AX Annual Hydro - Report P&R/Restore (FY00)
23374A	10	28MAY99	06JUN00	1.070	Farm BY Annual Hydro - Planning (FY01)
23374B	2	28MAY99	30MAY99	1.078	Farm BY Annual Hydro - Stage Equipment (FY01)
23374C	3	12JUN00	14JUN00	1.070	Farm BY Annual Hydro - Set Up (FY01)
23374D	3	16JUN00	19JUN00	1.070	Farm BY Annual Hydro - Perform Hydro Test (FY01)
23374E	3	20JUN00	22JUN00	1.070	Farm BY Annual Hydro - Report P&R/Restore (FY01)
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	30	14JUL99	22AUG03	236	Tank BY-102 Fit Isolation Design
23085C2	10	26JUL99	06AUG03	248	Tank BY-102 Isolation Planning
23085C3	10	25AUG03	06SEP03	238	Tank BY-102 Isolation Stage Equipment
23085C4	10	06SEP03	22SEP03	236	Tank BY-102 Isolation Work
23085C5	20	23SEP03	28OCT03	238	Tank BY-102 Isolation Complete Documentation
23085D1	30	14JUL99	22AUG03	236	Tank BY-103 Fit Isolation Design
23085D2	10	28JUL99	06AUG03	248	Tank BY-103 Isolation Planning
23085D3	10	25AUG03	06SEP03	238	Tank BY-103 Isolation Stage Equipment
23085D4	10	09SEP03	22SEP03	238	Tank BY-103 Isolation Work

Activity ID	Orig Dur	Early Start	Early Finish	Total Elapsed	
233000	20	23SEP93	20OCT93	235	
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					
233005	5	26APR99	30APR99	27	Tank BY-105 Per Tank Walkdown
23307A	75	04JAN99	18APR99	27	Management/Engineering
23307B	20	20APR99	17MAY99	27	Authorization Base (USCG/FGA/SELUCG)
23307C	20	18MAY99	15JUN99	27	Procure Abrasive Water Jet & Hanford Fabrication
23307D	35	18JUN99	05AUG99	27	Testing/Training/Assessment of Readiness
23310C	30	11MAY99	22JUN99	21	BY-105 Inlet Dan Upgrade WPIE
23310D	25	03MAY99	07JUN99	55	Tank BY-105 Inlet Dan - Modify Cover Blus
23310E	25	03MAY99	07JUN99	52	Tank BY-105 Inlet Dan - Media FG Monitor
23310F	25	03MAY99	07JUN99	55	Tank BY-105 Inlet Dan - Inlet Emission Sys
23310L	30	03MAY99	14JUN99	21	Tank BY-105 Inlet Dan - Install Pump Jumper
23315B	40	15JUN99	11AUG99	21	BY-105 New Pump Jumper (1 ea)
23325A	15	01APR99	21APR99	106	Tank BY-105 Plan/Modify Pump
23320B	10	01APR99	14APR99	106	Tank BY-105 Plan Run In
23320C	3	15APR99	18APR99	106	Tank BY-105 Pump Run In
23330A	10	24MAY99	07JUN99	52	Tank BY-105 FGM Planning
23330B	5	08JUN99	14JUN99	52	Tank BY-105 FGM Install
23330C	2	18JUN99	21JUN99	52	Tank BY-105 FGM Perform Calibration
23330D	3	15JUN99	17JUN99	52	Tank BY-105 FGM Perform OTP
23345C	30	23JUN99	05AUG99	29	Tank BY-105 Upgrade WPIE Cabinet
23350A	10	24MAY99	07JUN99	58	Tank BY-105 Saltwell Screen Planning
23350B	1	05AUG99	05AUG99	27	Tank BY-105 Saltwell Screen - Sigs & Prep

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Activity ID	Orig Dwr	Early Start	Early Finish	Total Float		FY98	FY99	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23360E		5/20/MAY/99	28/MAY/99	79																
23362A		30/10/MAY/99	07/JUN/99	66																
23362B		1/12/AUG/99	12/AUG/99	21																
23362C		3/13/AUG/99	17/AUG/99	21																
23362D		1/18/AUG/99	18/AUG/99	21																
23362E		2/07/SEP/99	06/SEP/99	9																
23364A		10/28/AUG/99	08/SEP/99	8																
23364B		1/06/SEP/99	08/SEP/99	8																
23364C		4/10/SEP/99	15/SEP/99	5																
23364D		1/16/SEP/99	16/SEP/99	3																
23372A		20/06/JUL/99	05/AUG/99	35																
23372B		2/15/SEP/99	16/SEP/99	5																
23372C		2/17/SEP/99	20/SEP/99	3																
1 01 02 01 04 43 05 02 Pump Tank BY-105																				
2337201		458/01/OCT/99	31/OCT/99	0																
2337202		316/01/OCT/99	05/JAN/01	897																
1 01 02 01 04 43 05 03 SWP System Maint & Operability Tank BY-105																				
23366A		3/03/JUN/98	03/JUN/98	279																
23366B		15/04/JUN/98	24/JUN/98	279																
23366C		10/04/JUN/98	17/JUN/98	287																
23366D		20/25/JUN/98	24/JUL/98	279																
23366E		20/18/JUN/98	17/JUL/98	287																
23366F		3/27/JUL/98	28/AUG/98	279																
23366G		3/30/JUL/98	03/AUG/98	279																

Activity ID	Orig Date	Early Start	Early Finish	Total Float
2336U	5/04/05	05/04/98	10/03/98	279
2336K	20/25/JUN/98	24/JUL/98		279
2336A	318/01/OCT/99	03/JAN/01		607
2336B	318/01/OCT/99	03/JAN/01		607
1.01.02.01.04.43.05.04 Isolation & Intrusion Prevention Tank BY-105				
2337A1	5/24/OCT/03	30/OCT/03		0
2337A2	1/31/OCT/03	31/OCT/03		35
2337B1	00/31/OCT/03	29/DEC/03		0
2337B2	2/24/DEC/03	29/DEC/03		0
2337B3	10/30/DEC/03	13/JAN/04		0
2338A	30/19/SEP/03	30/OCT/03		45
2338B	10/03/NOV/03	14/NOV/03		37
2339C	10/14/JAN/04	27/JAN/04		0
2339D	30/28/JAN/04	10/FEB/04		0
2339E	20/11/FEB/04	10/MAR/04		0
2339F	0	10/MAR/04		0
1.01.02.01.04.43.06.01 Stabilize and Isolate Tank BY-106				
1.01.02.01.04.43.06.01 Prepare Tank BY-106 for Pumping				
2347A	20/24/JUN/99	23/JUL/99		86
2347B	2/07/OCT/99	08/OCT/99		13
2347C	2/11/OCT/99	12/OCT/99		13
1.01.02.01.04.43.06.02 Pump Tank BY-106				
2347D1	639/01/NOV/99	31/JUL/01		0
2347D2	438/01/NOV/99	30/JUL/01		754
1.01.02.01.04.43.06.03 SWP System Maint & Operability Tank BY-106				

BY-105
BY-105 Perform Hydro Test Above Gnd Xfr Line

BY-105 Procure Material

Tank BY-105 (Annual) Cal

BY 105 Selftest System PMs (Annual)

Tank BY 105 Prepare WP for In Tank Video

Tank BY-105 Perform In Tank Video

Tank BY 105 Evaluate SWP Pumping Data

Tank BY 105 Evaluate In Tank Video Data

Tank BY 105 Prep JWH Letter/Decline Complete

Tank BY-105 Pnt Isolation Design

Tank BY-105 Isolation Planning

Tank BY-105 Isolation Stage Equipment

Tank BY 105 Isolation Work

Tank BY 105 Isolation Complete Documentation

Tank BY 105 Tank Stabilization/Isolation Compl

Tank BY-106 Write Xfr Procedure for SWP Pumping

Tank BY 105 Perform Mgt Assessment Pre Start

Tank BY-105 Perform Prep's for SWP Pumping

Pump Tank BY 105

Tank BY-105 Perform Weekly Flush during SWP Pumping

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23405C	6	14APR99*	20APR99	8	Tank BY-106 Per Tank Walkdown
23410C	30	21APR99	02JUN99	56	BY-106 Instl Dan - Upgr VtFIE
23410E	25	21APR99	22MAY99	81	Tank BY-106 Instl Dan - Media FG Monitor
23411F	35	21APR99	06JUN99	51	Tank BY-106 Instl Dan - Upgr Leak Detect
23416L	30	20APR99	02JUN99	8	Tank BY-106 Instl Dan - Install Pump Jumper
23415B	40	06JUN99	30JUL99	8	BY-106 New Pump Jumper (1 ea)
23425A	15	02AUG99	20AUG99	43	Tank BY-106 Plan/Modify Pump
23425B	10	02AUG99	13AUG99	43	Tank BY-106 Plan Run-In
23425C	3	15AUG99	18AUG99	43	Tank BY-106 Pump Run-In
23430A	10	12MAY99	23MAY99	81	Tank BY-106 FGM Planning
23430B	5	28MAY99	02JUN99	81	Tank BY-106 FGM Install
23430C	2	08JUN99	09JUN99	81	Tank BY-106 FGM Perform Calibration
23430D	3	09JUN99	07JUN99	81	Tank BY-106 FGM Perform OTP
23445A	10	23APR99	03MAY99	108	Tank BY-106 Exhauster Planning
23445B	8	07MAY99	13MAY99	103	Tank BY-106 Stage Materials
23445C	8	24MAY99	01JUN99	103	Tank BY-106 (OTP) Exhauster
23445D	30	10JUN99	23JUL99	51	Tank BY-106 Upgrade/VtFIE Cabinet
23452C	30	10JUN99	23JUL99	51	Tank BY-106 Upgr Infr - Leak Detectors
23454A1	3	02AUG99*	04AUG99	13	Tank BY-106 Review/Verify Profile SHI Complete
23454A2	5	06AUG99	11AUG99	39	Tank BY-106 Calc Inputs for Time 25% LFL Determin
23454A3	2	12AUG99	13AUG99	39	Tank BY-106 Calc Inputs for Time 25% LFL Determin
23454A4	2	12AUG99	13AUG99	39	Tank BY-106 Determin DCRT Time to 25% LFL Determin
23454A5	6	14SEP99	21SEP99	13	Tank BY-106 Compl/Competability Compliance Table

Data Updated

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13
2345A6	3	22SEP88	24SEP88	13														
						Tank BY-106 Write Review Issue White Paper												
2345A7	5	27SEP88	01OCT88	13														
						Tank BY-106 Perform Assessment/Review/Approve Pkg												
2345A8	5	04OCT88	08OCT88	13														
						Tank BY-106 Management review & approval												
2345B1	2	02AUG89	03AUG89	13														
						Tank BY-106 Review ANOVA Results												
2345B2	5	04AUG89	10AUG89	13														
						Tank BY-106 Gather Process Data (EVA/FLOW Rate)												
2345B3	5	11AUG89	17AUG89	13														
						Tank BY-106 Perform Calculations												
2345B4	3	18AUG89	20AUG89	13														
						Tank BY-106 Prepare Appendix to SD												
2345B5	15	23AUG89	13SEP89	13														
						Tank BY-106 Write Supporting Document												
2345B6	10	21JUN89	02JUL89	52														
						Tank BY-106 OTP Planning												
2345B7	10	21JUN89	02JUL89	52														
						Tank BY-106 Engr Planning OTP Saltwell Syst												
2345B8	12	08JUL89	23JUL89	51														
						Tank BY-106 Perform OTP												
2345B9	10	05AUG89	18AUG89	43														
						Tank BY-106 OTP Closeout												
23460A	10	05AUG89	19AUG89	8														
						Tank BY-106 Hydro - Planning (1.2k Line)												
23460B	1	20AUG89	20AUG89	8														
						Tank BY-106 Hydro - Stage Equipment												
23460C	4	23AUG89	26AUG89	8														
						Tank BY-106 Hydro - Set Up												
23460D	3	27AUG89	31AUG89	8														
						Tank BY-106 Hydro - Perform Hydro Test												
23460E	3	01SEP89	06SEP89	8														
						Tank BY-106 Hydro - Recovery Pkg/Restore												
23467A	20	01JUL89	30JUL89	8														
						Tank BY-106 Pk Impr/Mod Cover Bldg Planning												
23462B	1	02AUG89	02AUG89	8														
						Tank BY-106 Pk Impr/Mod Cover Bldg Stage Equip												
23462C	3	03AUG89	05AUG89	8														
						Tank BY-106 Pk Impr/Mod Cover Bldg Field Work												
23462D	1	06AUG89	06AUG89	50														
						Tank BY-106 Pk Impr/Mod Cover Bldg												
23462E	2	07SEP89	08SEP89	30														
						Tank BY-106 Pk Impr/Mod Cover Bldg Restoration												
23464A	10	23AUG89	03SEP89	29														
						Tank BY-106 Work Planning												

Activity ID	Orig Date	Early Start	Early Finish	Total Float		FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23464B		1/05/SEP99	06/SEP99	29															
23464C		4/10/SEP99	13/SEP99	29															
23464D		1/16/SEP99	16/SEP99	29															
23465A		438/01/NOV99	30/JUL01	764															
23465B		438/01/NOV99	30/JUL01	794															
1 01 02 01 04 43 06 04 Isolation & Intrusion Prevention Tank BY-106																			
23478A1		8/24/OCT03	30/OCT03	0															
23478A2		1/31/OCT03	31/OCT03	35															
23478B1		80/31/OCT03	29/DEC03	0															
23478B2		2/24/DEC03	29/DEC03	0															
23478B3		10/30/DEC03	13/JAN04	0															
23480A		30/16/SEP03	30/OCT03	48															
23480B		70/03/NOV03	14/NOV03	37															
23480C		10/14/JAN04	27/JAN04	0															
23480D		10/28/JAN04	10/FEB04	0															
23480E		20/11/FEB04	10/MAR04	0															
23485		0	10/MAR04	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		30/14/JUL03	22/AUG03	236															
23085E2		10/26/JUL03	08/AUG03	248															
23085E3		10/25/AUG03	06/SEP03	236															
23085E4		10/06/SEP03	22/SEP03	258															
23085E5		20/23/SEP03	20/OCT03	236															
1 01 02 01 04 43 20 Tank Ventilation Sys SST 241 BX Tank Farm																			
					Tank BY-106 Stage/Prep Equipment Tank BY-106 Perform In-Tank Video Tank BY-106 Evaluate SWF Pumping Data Tank BY-106 Evaluate In-Tank Video Data Tank BY-106 Prep Justif Letter/Declare Complete Tank BY-106 Pil Isolation Design Tank BY-106 Isolation Planning Tank BY-106 Isolation Stage Equipment Tank BY-106 Isolation Work Tank BY-106 Isolation Complete Documentation Tank BY-106 Tank Stabilization/Isolation Comp														
					Tank BY-109 Pil Isolation Design Tank BY-109 Isolation Planning Tank BY-109 Isolation Stage Equipment Tank BY-109 Isolation Work Tank BY-109 Isolation Complete Documentation														

Activity ID	Orig Der	Early Start	Early Finish	Total Float
1.01.02.01.04.43.20.01 Tank Ventilation Sys SST 241-BX Tank Farm				
23440E	5	14MAY98	21MAY98	103
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	438	01NOV99	30JUL01	794
23432BT	438	01NOV99	30JUL01	794
23432B	438	01NOV99	30JUL01	794
D147A	460	01OCT98	31JUL01	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	1	18MAR01	18MAR01	21
23505B	10	18MAR01	30MAR01	21
23505C	5	19MAR01	23MAR01	25
23510B	25	19MAR01	20APR01	54
23510D	25	02APR01	04MAY01	67
23510E	25	02APR01	04MAY01	64
23510F	25	02APR01	18MAY01	24
23510L	30	02APR01	11MAY01	21
23520A	15	19JUN01	10JUL01	21
23520B	10	18JUN01	02JUL01	21
23520C	3	03JUL01	05JUL01	21
23530A	10	23APR01	04MAY01	54
23530B	5	07MAY01	11MAY01	64
23530C	2	17MAY01	18MAY01	54

1.01.02.01.04.44.03.01 Prepare Tank C-103 for Pumping

Tank BY-108 Installation & Tie-In

Tank BY-108 Prepare WP for DCRT PM's & CM's

Tank BY-108 Perform Preventive Maintenance on DCRT

Tank BY-108 Perform Corrective Maintenance on DCRT

DCRT 244-BX for SST 241-BY Tank Farm

C-103 Kick off Meeting

C-103 Farm Workdown

Tank C-103 Per Tank Workdown

Tank C-103 Install Dan - Upgr Pump/Instl Dan Sled

Tank C-103 Install Dan - Modify Cover Blks

Tank C-103 Install Dan - Modfy FG Monitor (2)

Tank C-103 Install Dan - Upgr Leak Detect

Tank C-103 Install Dan - Install Pump Jumper

Tank C-103 Plan/Modify Pump

Tank C-103 Plan Run In

Tank C-103 Pump Run-In

Tank C-103 FGM Planning (2)

Tank C-103 FGM Install (2)

Tank C-103 FGM Perform Calibration (2)

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
235300	3	14MAY01	16MAY01	54	Tank C 103 FGM Perform OTP (2)
23540A	10	19MAR01	30MAR01	95	Tank C 103 Exhauster Planning
23540B	5	28MAR01	30MAR01	95	Tank C 103 Stage Materials
23540C	6	10APR01	17APR01	95	Tank C 103 (OTP) Exhauster
23540E	20	02JUN01	02JUL01	24	Tank C 103 Upgrade/Install Test PIC
23552C	30	21MAY01	02JUL01	24	Tank C 103 Upgr Infr Leak Detection (3)
23554A1	3	01MAY01	03MAY01	35	Tank C 103 Renew/Verify Profile SH Complete
23554A2	5	03MAY01	10MAY01	61	Tank C 103 Calc Inputs for Time 25% LFL Detenn
23554A3	2	11MAY01	14MAY01	61	Tank C 103 Calc Inputs for Time 25% LFL Detenn
23554A4	2	17MAY01	14MAY01	61	Tank C 103 Detenn DCRT Time to 25% LFL Detenn
23554A5	6	13JUN01	20JUN01	35	Tank C 103 Compl Compatibility Compliance Table
23554A6	3	21JUN01	25JUN01	35	Tank C 103 Write/Review Issue Write Paper
23554A7	8	28JUN01	02JUL01	35	Tank C 103 Perform Assessment/Rev/Approve Pkg
23554A8	5	03JUL01	10JUL01	35	Tank C 103 Management review & approval
23554B1	2	01MAY01	02MAY01	35	Tank C 103 Renew AMOVA Reports
23554B2	5	03MAY01	09MAY01	35	Tank C 103 Gather Process Data (EVAP/FLOW Rate)
23554B3	5	10MAY01	16MAY01	35	Tank C 103 Perform Calculations
23554B4	3	17MAY01	21MAY01	35	Tank C 103 Prepare Appendix to SD
23554B5	16	22MAY01	13JUN01	35	Tank C 103 Write Supporting Document
23558A	10	19MAR01	30MAR01	77	Tank C 103 OTP Planning
23558B	10	19MAR01	30MAR01	77	Tank C 103 Engr Planning OTP Saturated Sys
23558D	12	20JUN01	06JUL01	21	Tank C 103 Perform OTP
23558E	10	06JUL01	20JUL01	21	Tank C 103 OTP Closeout

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23560A	10	18MAR01	30MAR01	85	Tank C-103 Hydro - Planning (3 Xir Line)
23560B	1	03APR01	03APR01	85	Tank C-103 Hydro - Stage Equipment (3)
23560C	4	03APR01	06APR01	85	Tank C-103 Hydro - Set Up (3)
23560D	3	06APR01	11APR01	85	Tank C-103 Hydro - Perform Hydro Test (3)
23560E	5	12APR01	18APR01	85	Tank C-103 Hydro - Record Pits/Restore (3)
23562A	20	06APR01	04MAY01	67	Tank C-103 P4 Jump/Mod Cover Blks Planning
23562B	1	07MAY01	07MAY01	67	Tank C-103 P4 Jump/Mod Cover Blks Stage Eqpt
23562C	3	08MAY01	10MAY01	67	Tank C-103 P4 Jump/Mod Cover Blks Field Work
23562D	1	11MAY01	11MAY01	67	Tank C-103 P4 Jump/Mod Cover Blks
23562E	2	14MAY01	15MAY01	67	Tank C-103 P4 Jump/Mod Cover Blks Restoration
23564A	10	18MAR01	30MAR01	85	Tank C-103 Work Planning
23564B	1	23JUL01	23JUL01	21	Tank C-103 Stage/Prep Equipment
23564C	4	24JUL01	27JUL01	21	Tank C-103 Perf Lances/Install Screen
23564D	1	30JUL01	30JUL01	21	Tank C-103 Restoration
23572A	20	18JUN01	13JUL01	30	Tank C-103 Write Xir Procedure for SW Pumping
23572B	2	27JUL01	30JUL01	21	Tank C-103 Perform Mgt Assessment Pre-Start
23572C	2	30JUL01	01AUG01	21	Tank C-103 Perform Pretest's for SW Pumping
1.01.02.01.04.44.03.02 Pump Tank C-103					
23572D1	68	31AUG01	28NOV01	0	Pump Tank C-103
23572D2	61	31AUG01	28NOV01	710	Tank C-103 Perf Weekly Flush during SW Pumping
1.01.02.01.04.44.03.03 SWP System Maint & Operability Tank C-103					
23581B	40	14MAY01	10JUL01	21	C-103 New Pump Jumper (1 ss)
23568A	61	31AUG01	28NOV01	710	Tank C-103 (Annual) C&I
23568B	61	31AUG01	28NOV01	710	Tank C-103 (Annual) PM

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.44.03.04 Isolation & Intrusion Prevention Tank C-103				
23578A1	5	24OCT03	30OCT03	0
23578A2	1	31OCT03	31OCT03	35
23578B1	60	31OCT03	29DEC03	0
23578B2	2	24DEC03	26DEC03	0
23578B3	10	30DEC03	09JAN04	0
23580A	30	19SEP03	30OCT03	48
23580B	10	03NOV03	14NOV03	37
23580C	10	14JAN04	27JAN04	0
23580D	10	26JAN04	10FEB04	0
23580E	20	11FEB04	10MAR04	0
23580F	0		10MAR04	0

1.01.02.01.04.44.03.05 Remove & Dispose Organics in Tank C-103**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	30	14JUL03	22AUG03	238
23085F2	10	29JUL03	06AUG03	246
23085F3	10	26AUG03	06SEP03	236
23085F4	10	06SEP03	23SEP03	238
23085F5	20	23SEP03	20OCT03	235

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	30	14JUL03	22AUG03	238
23085G2	10	26JUL03	06AUG03	246
23085G3	10	26AUG03	06SEP03	236

Tank C-103 Prepare WP for In-Tank Video

Tank C-103 Perform In-Tank Video

Tank C-103 Evaluate SW Pumping Corps

Tank C-103 Evaluate In-Tank Video Data

Tank C-103 Prep Joint Letter/Decision Complete

Tank C-103 PI Isolation Design

Tank C-103 Isolation Planning

Tank C-103 Isolation Stage Equipment

Tank C-103 Isolation Work

Tank C-103 Isolation Complete Documentation

Tank C-103 Tank Stabilization/Isolation Compl.

Tank C-105 PI Isolation Design

Tank C-105 Isolation Planning

Tank C-105 Isolation Stage Equipment

Tank C-105 Isolation Work

Tank C-105 Isolation Complete Documentation

Tank C-106 PI Isolation Design

Tank C-106 Isolation Planning

Tank C-106 Isolation Stage Equipment

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23085G4		10/08SEP03	22SEP03	230	
23085G5	20	23SEP03	20OCT03	236	
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	8	02APR01	08APR01	96	
1.01.02.01.04.44.30 DCRT 244-CR for SST 241-C Tank Farm					
1.01.02.01.04.44.30.01 DCRT 244-CR for SST 241-C Tank Farm					
1.01.02.01.04.48 SST 241-S Tank Farm Stabilization/Isolation					
1.01.02.01.04.48.01 Stabilize and Isolate Tank S-101					
1.01.02.01.04.48.01.01 Prepare Tank S-101 for Pumping					
23A09C	5	16APR99	21APR99	21	
23A10B	25	15APR99	18MAY99	54	
23A10D	25	22APR99	28MAY99	72	
23A10E	25	22APR99	28MAY99	59	
23A10K	25	22APR99	28MAY99	76	
23A10L	30	22APR99	01JUN99	24	
23A16A	30	04JUN99	18JUL99	24	
23A20A	15	20JUL99	08AUG99	21	
23A20B	10	20JUL99	02AUG99	27	
23A20C	3	03AUG99	05AUG99	21	
23A30A	10	13MAY99	28MAY99	59	
23A30B	5	27MAY99	01JUN99	59	
23A30C	2	06JUN99	07JUN99	59	
23A30D	3	06JUN99	06JUN99	59	
23A46B	20	20MAY99	17JUN99	54	
23A50A	10	22APR99	05MAY99	90	
Tank C-108 Isolation Work Tank C-108 Isolation Complete Documentation Tank C-109 Installation & Tie-In					
Tank S-101 Per Tank Walkdown Tank S-101 Insul Den - Upgrade Pump/Jump Off Skid Tank S-101 Prep Upgrade ECH Cover Block Modif Tank S-101 Prep Den Media to Install FG Monitor Tank S-101 Insul Den - BWP Screen Tank S-101 Insul Den - Install Pump Jumper Tank S-101 Mod Existing Pump Jumper (1 ea) Tank S-101 Plan/Modify Pump Tank S-101 Plan Run-In Tank S-101 Pump Run-In Tank S-101 FGM Planning Tank S-101 FGM Install Tank S-101 FGM Perform Calibration Tank S-101 FGM Perform OTP Tank S-101 Upgrade/Install Test PKC Tank S-101 Saltwell Screen Planning					

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Task Description
23A500	1	26MAY99	26MAY99	76	Tank S-101 Saltwell Screen - Stage 8 Prep
23A500	2	27MAY99	28MAY99	76	Tank S-101 Saltwell Screen - Install
23A500	1	01JUN99	01JUN99	76	Tank S-101 Saltwell Screen - Restoration
23A54A1	3	24MAY99	26MAY99	39	Tank S-101 Renew/Verify Profile Sht Complete
23A54A2	3	27MAY99	03JUN99	86	Tank S-101 Calc Inputs for Time 25% LFL Determin
23A54A3	2	04JUN99	07JUN99	65	Tank S-101 Calc Inputs for Time 25% LFL Determin
23A54A4	2	04JUN99	07JUN99	66	Tank S-101 Determin DORT Time to 25% LFL Determin
23A54A5	6	06JUL99	16JUL99	39	Tank S-101 Compl Completability Compliance Table
23A54A6	3	16JUL99	20JUL99	39	Tank S-101 Write/Review Issue White Paper
23A54A7	5	21JUL99	27JUL99	39	Tank S-101 Perform Assessment/Review/Approve Pkg
23A54A8	6	28JUL99	03AUG99	39	Tank S-101 Management review & approval
23A54B1	2	24MAY99	25MAY99	39	Tank S-101 Review ANOVA Results
23A54B2	5	26MAY99	02JUN99	39	Tank S-101 Gather Process Data (EVAP/Flow Rate)
23A54B3	6	03JUN99	08JUN99	39	Tank S-101 Perform Calculations
23A54B4	3	10JUN99	14JUN99	39	Tank S-101 Prepare Appendix to SD
23A54B5	15	15JUN99	07JUL99	39	Tank S-101 Write Supporting Document
23A56A	10	16APR99	28APR99	77	Tank S-101 Plan OTP
23A56B	10	16APR99	28APR99	77	Tank S-101 Engineering Plan OTP Saltwell Sys
23A56C	12	21JUL99	02AUG99	21	Tank S-101 Perform OTP
23A56E	10	06AUG99	19AUG99	21	Tank S-101 OTP Closeout
23A60A	10	23APR99	03MAY99	76	Tank S-101 Hydro - Planning (1 Xir Line)
23A60B	1	13MAY99	13MAY99	76	Tank S-101 Hydro - Stage Equipment
23A60C	4	14MAY99	18MAY99	76	Tank S-101 Hydro - Set Up

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
23A600	3	20MAY98	24MAY98	76	Tank S-101 Hydro - Perform Hydro Test
23A60E	3	25MAY98	01JUN98	76	Tank S-101 Hydro - Reconfig Pits/Restore
23A62A	20	26APR98	26MAY98	72	Tank S-101 Pit Imp/Mod Cover Bks Planning
23A62B	1	27MAY98	27MAY98	72	Tank S-101 Pit Imp/Mod Cover Bks Stage Equip
23A62C	3	28MAY98	02JUN98	72	Tank S-101 Pit Imp/Mod Cover Bks Field Work
23A62D	1	03JUN98	03JUN98	72	Tank S-101 Pit Imp/Mod Cover Bks
23A62E	2	04JUN98	07JUN98	72	Tank S-101 Pit Imp/Mod Cover Bks Restoration
23A64A	10	15APR98	26APR98	38	Tank S-101 Planning
23A64B	1	20AUG98	20AUG98	21	Tank S-101 Stage/Prep Equipment
23A64C	4	23AUG98	29AUG98	21	Tank S-101 Perl Latched/Install Screen
23A64D	1	27AUG98	27AUG98	21	Tank S-101 Restoration
23A72A	20	06JUL98	06AUG98	35	Tank S-101 Write Xfr Procedure for SW Pumping
23A72B	2	25AUG98	27AUG98	21	Tank S-101 Perform Mgt Assessment Pre-Start
23A72C	2	30AUG98	31AUG98	21	Tank S-101 Perform Pre-ops for SW Pumping
1.01.02.01.04.45.01.02 Pump Tank S-101					
23A72D1	303	01OCT98	29JUL00	0	Pump Tank S-101
23A72D2	208	01OCT98	31JUL00	1 045	Tank S-101 Perl Weekly Flush during SW Pumping
1.01.02.01.04.45.01.03 SWP System Maint & Operability Tank S-101					
23A68A	208	01OCT98	31JUL00	1 045	Tank S-101 (Annual) CM
23A68B	208	01OCT98	31JUL00	1 045	Tank S-101 (Annual) PM
1.01.02.01.04.45.01.04 Isolation & Intrusion Prevention Tank S-101					
23A78A1	5	24OCT03	30OCT03	0	Tank S-101 Prepare WP for In-Tank Video
23A78A2	1	31OCT03	31OCT03	39	Tank S-101 Perform In-Tank Video
23A78B1	60	31OCT03	28DEC03	0	Tank S-101 Evaluate SW Pumping Data

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23A7882	2	24DEC03	29DEC03	0	Tank S-101 Evaluate In-Tank Video Data
23A7883	10	30DEC03	13JAN04	0	Tank S-101 Prep Justif Leben/Dedare Complete
23A88A	30	19SEP03	30OCT03	48	Tank S-101 PII Isolation Design
23A88B	10	03NOV03	14NOV03	37	Tank S-101 Isolation Planning
23A88C	10	14JAN04	27JAN04	0	Tank S-101 Isolation Stage Equipment
23A88D	10	28JAN04	10FEB04	0	Tank S-101 Isolation Work
23A88E	20	11FEB04	10MAR04	0	Tank S-101 Isolation Complete Documentation
23A88F	0		10MAR04	0	Tank S-101 Tank Stabilization/Isolation Compl
1.01.02.01.04.45.02 Stabilize and Isolate Tank S-102					
1.01.02.01.04.46.02.01 Prepare Tank S-102 for Pumping					
23B78C	5	01JUN98	06JUN98	0	Tank S-102 Pgr Tank Watdown
23B78D	25	01JUN98	07JUL98	118	Tank S-102 Insd Den - Upgr Pump/Inlet Cnt Skid
23B78E	28	08JUN98	14JUL98	135	Tank S-102 Prep/Appro ECN Cover Block Modif
23B78F	25	08JUN98	14JUL98	121	Tank S-102 Prep Den Modif to Install PG Monitor
23B78G	35	08JUN98	28JUL98	81	Tank S-102 Insd Den - Upgr Leak Detect
23B78H	25	08JUN98	14JUL98	137	Tank S-102 Insd Den - SWP Screen
23B78I	30	08JUN98	21JUL98	83	Tank S-102 Insd Den - Install Pump Jumper
23B78J	120	08JUN98	25NOV98	0	Tank S-102 Insd Den - Install Vlv PII Jump (8)
23B78K	35	08JUN98	28JUL98	89	Tank S-102 Insd Den - Inf Heat Trachs
23B78L	35	08JUN98	28JUL98	89	Tank S-102 Insd Den - Intracirc (Elect)
23B78M	30	25JUL98	01SEPS8	50	Tank S-102 Mod Existing Pump Jumper (1 ss)
23B78N	40	30NOV98	27JAN99	0	Tank S-102 Fab PII Valve Jumpers (6)
23B78O	18	02SEP98	23SEP98	90	Tank S-102 Plan/Modify Pump
23B78P	10	02SEP98	16SEP98	83	Tank S-102 Plan Run-In

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23B20C	3	17SEP98	21SEP98	89	Tank S-102 Pump Run-in
23B30A	10	26JUN98	14JUL98	121	Tank S-102 FGM Planning
23B30B	5	15JUL98	21JUL98	121	Tank S-102 FGM Install
23B30C	2	10SEP98	11SEP98	89	Tank S-102 FGM Perform Calibration
23B30D	3	04SEP98	06SEP98	89	Tank S-102 FGM Perform QTP
23B40A	10	23APR99	06MAY99	87	Tank S-102 Exhauster Planning
23B40B	5	07MAY99	13MAY99	92	Tank S-102 Stage Materials
23B40G	6	24MAY99	01JUN99	92	Tank S-102 (QTP) Exhauster
23B45B	20	12AUG98	08SEP98	64	Tank S-102 Upgrade PIC Slew
23B50A	10	25JUN98	14JUL98	137	Tank S-102 Softwell Screen Planning
23B50B	1	15JUL98	15JUL98	137	Tank S-102 Softwell Screen - Stage 3 Prep
23B50C	2	16JUL98	17JUL98	137	Tank S-102 Softwell Screen - Install
23B50D	1	20JUL98	20JUL98	137	Tank S-102 Softwell Screen - Restoration
23B52A	50	29JUL98	08SEP98	89	Tank S-102 Upgr Infr - Electrical
23B52C	30	29JUL98	08SEP98	89	Tank S-102 Upgr Infr - Leak Detectors
23B52D	30	29JUL98	08SEP98	89	Tank S-102 Upgr Infr - Heat Trace
23B52E	30	29JUL98	08SEP98	89	Tank S-102 Upgr Infr - Instrument Upgrades
23B54A1	3	08NOV98	11NOV98	16	Tank S-102 Renew/Verify Profile Shd Complete
23B54A2	5	12NOV98	18NOV98	42	Tank S-102 Calc inputs for Time 25% LFL Determn
23B54A3	2	18NOV98	20NOV98	42	Tank S-102 Calc inputs for Time 25% LFL Determn
23B54A4	2	19NOV98	20NOV98	42	Tank S-102 Determn DCRT Time to 25% LFL Determn
23B54A5	5	23DEC98	04JAN99	16	Tank S-102 Compl/Compleability Compliance Table
23B54A6	3	05JAN99	07JAN99	16	Tank S-102 Underpinning Issue Write Paper

Activity ID	Orig Der	Early Start	Early Finish	Total Float	
23854A7		5 08JAN99	14JAN99	16	Tank S-102 Perform Assessment/Review/Approve Pkg
23854A8		6 15JAN99	25JAN99	16	Tank S-102 Management review & approval
23854B1		2 10NOV98	10NOV98	16	Tank S-102 Review AMOVA Results
23854B2		3 11NOV98	17NOV98	16	Tank S-102 Gather Process Data (EVAR/FLOW Rate)
23854B3		5 16NOV98	24NOV98	16	Tank S-102 Perform Calculations
23854B4		5 20NOV98	01DEC98	16	Tank S-102 Prepare Appendix to SD
23854B5		15 02DEC98	22DEC98	16	Tank S-102 Write Supporting Document
23855A		10 01JUN99	12JUN99	139	Tank S-102 Plan QTP
23855B		10 01JUN99	12JUN99	139	Tank S-102 Engineering Plan QTP Software Sys
23855C		12 25AUG99	15SEP99	89	Tank S-102 Perform QTP
23855E		10 14SEP99	25SEP99	89	Tank S-102 QTP Closeout
23855A		10 30DEC98	13JAN99	3	Tank S-102 Hydro - Planning (1 Xtr Low) (4)
23855B		1 14JAN99	14JAN99	3	Tank S-102 Hydro - Stage Equipment (4)
23855C		4 15JAN99	20JAN99	3	Tank S-102 Hydro - Set Up (4)
23855D		3 21JAN99	26JAN99	3	Tank S-102 Hydro - Perform Hydro Test (4)
23855E		5 25JAN99	01FEB99	3	Tank S-102 Hydro - Reconfig Pkg/Restore (4)
23855A		20 30DEC98	27JAN99	0	Tank S-102 Pk Impr/Mod Cover Blks Planning (4)
23855B		1 28JAN99	28JAN99	0	Tank S-102 Pk Impr/Mod Cover Blks Stage Equip (4)
23855C		3 29JAN99	02FEB99	0	Tank S-102 Pk Impr/Mod Cover Blks Field Work (4)
23855D		1 03FEB99	03FEB99	0	Tank S-102 Pk Impr/Mod Cover Blks (4)
23855E		2 04FEB99	05FEB99	0	Tank S-102 Pk Impr/Mod Cover Blks Restore (4)
23854A		10 18JAN99	07FEB99	3	Tank S-102 Planning
23854B		1 02FEB99	02FEB99	3	Tank S-102 Stage/Proc Equipment

Activity ID	Orig Det	Early Start	Early Finish	Total Float	
23B64C	4	08FEB99	11FEB99	0	Tank S-102 Perf Land Install Screen
23B64D	1	12FEB99	12FEB99	0	Tank S-102 Rejection
23B65A	3	01JUN99	03JUN99	64	Tank S-102 Walkin for Overground Xrf Line (OGT)
23B65B	15	04JUN99	24JUN99	98	Tank S-102 Write Installation ECRs
23B65C	20	25JUN99	24JUL99	94	Tank S-102 OGT Work Package Prep
23B65D	25	27JUL99	28AUG99	98	Tank S-102 Fabric OGT Line Shield Covers
23B65E	10	31AUG99	14SEP99	64	Tank S-102 OGT System - Field Work
23B65F	6	18SEP99	21SEP99	64	Tank S-102 Perf Hydro Test Above Gnd Xrf Line
23B66G	20	25JUN99	24JUL99	94	Tank S-102 Procure Material
23B72A	20	08NOV99	08DEC99	43	Tank S-102 Write Xrf Procedure for SW Pumping
23B72B	2	11FEB99	12FEB99	0	Tank S-102 Perform Mgt Assessment Pre-Start
23B72C	2	16FEB99	17FEB99	0	Tank S-102 Perform Pretests for SW Pumping
1.01.02.01.04.45.02.02 Pump Tank S-102					
23B72D1	608	18FEB99	17OCT00	0	Pump Tank S-102
23B72D2	288	18FEB99	10APR00	1,122	Tank S-102 Perf Weekly Flush during SW Pumping
1.01.02.01.04.45.02.03 SWP System Maint & Operability Tank S-102					
23B68A	287	18FEB99	21APR00	1,113	Tank S-102 (Annual) CM
23B68B	257	18FEB99	21APR00	1,113	Tank S-102 (Annual) PM
1.01.02.01.04.45.02.04 Isolation & Intrusion Prevention Tank S-102					
23B78A1	8	24OCT03	30OCT03	0	Tank S-102 Prepare WP for In-Tank Video
23B78A2	1	31OCT03	31OCT03	35	Tank S-102 Perform In-Tank Video
23B78B1	60	31OCT03	28DEC03	0	Tank S-102 Evaluate SW Pumping Data
23B78B2	2	24DEC03	28DEC03	0	Tank S-102 Evaluate In-Tank Video Data
23B78B3	10	30DEC03	13JAN04	0	Tank S-102 Prep Justification/Capture Compl

Activity ID	Orig Dtr	Early Start	Early Finish	Total Fleet	
23B80A	30	19SEP03	30OCT03	48	Tank S-102 Pti Isolation Design
23B80B	10	03NOV03	14NOV03	37	Tank S-102 Isolation Planning
23B80C	10	14JAN04	27JAN04	0	Tank S-102 Isolation Stage Equipment
23B80D	10	26JAN04	10FEB04	0	Tank S-102 Isolation Work
23B80E	20	11FEB04	10MAR04	0	Tank S-102 Isolation Complete Documentation
23B80S	0		10MAR04	76	Tank S-102 Stabilization/Isolation Complete
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					
23C10C	5	01JUN98	06JUN98	0	Tank S-103 Per Tank Walkdown
23C10A	30	15OCT98	25NOV98	43	Tank S-103 Den Pmpg & Inr CUM SKd
23C10B	26	18OCT98	18NOV98	72	Tank S-103 Prep/Appro ECU Cover Block Modf.
23C10E	26	15OCT98	18NOV98	58	Tank S-103 Prep Den Made to Instl PQ Monitor
23C10K	26	08JUN98	14JUL98	0	Tank S-103 Instl Den - SUMP Screen
23C10L	30	18OCT98	26NOV98	46	Tank S-103 Instl Den - Install Pump Jumper
23C15A	30	30NOV98	13JAN99	45	Tank S-103 Mod Existing Pump Jumper (1 set)
23C20A	15	21DEC98	13JAN99	45	Tank S-103 Plan/Modify Pump
23C20B	10	21DEC98	08JAN99	46	Tank S-103 Plan Run-In
23C20C	3	07JAN99	11JAN99	45	Tank S-103 Pump Run-In
23C25A	40	01JUN98	12JUN98	41	Tank S-103 Write PMTSAP
23C25B	22	01JUN98	30JUN98	41	Tank S-103 Plan/Schedule/Obtain Materials
23C25C	3	31AUG98	02SEP98	0	Tank S-103 Obtain Grab Sample
23C25D	68	03SEP98	06DEC98	0	Tank S-103 Analyze Grab Sample
23C25E	22	06DEC98	12JAN99	0	Tank S-103 Issue Lab Analysis Final Report
23C25F	1	13JAN99	13JAN99	0	Tank S-103 Enter Lab Data into TCD

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23C30A	10	05NOV98	18NOV98	58	Tank S-103 FGM Planning (2)
23C30B	5	18NOV98	25NOV98	68	Tank S-103 FGM Install (2)
23C30C	2	03DEC98	04DEC98	58	Tank S-103 FGM Perform Calibration (2)
23C30D	3	30NOV98	02DEC98	58	Tank S-103 FGM Perform OTP (2)
23C45A	30	30NOV98	29DEC98	43	Tank S-103 Receiver/Install Test PIC
23C36A	10	25JUN98	14JUL98	0	Tank S-103 Sabwell Screen Planning
23C50B	1	15JUL98	15JUL98	0	Tank S-103 Sabwell Screen - Stage & Prep
23C50C	2	16JUL98	17JUL98	0	Tank S-103 Sabwell Screen - Install
23C50D	1	20JUL98	20JUL98	29	Tank S-103 Sabwell Screen - Restoration
23C54A1	3	14JAN99	18JAN99	0	Tank S-103 Review/Verify Profile Sht Complete
23C54A2	5	19JAN99	25JAN99	26	Tank S-103 Calc Inputs for Time 25% LFL Determin
23C54A3	2	26JAN99	27JAN99	26	Tank S-103 Calc Inputs for Tank 25% LFL Determin
23C54A4	2	26JAN99	27JAN99	26	Tank S-103 Determine DCRT Time to 25% LFL Determin
23C54A5	6	26FEB99	06MAR99	0	Tank S-103 Compl Competability Compliance Table
23C54A6	3	06MAR99	10MAR99	0	Tank S-103 Write/Review Issue White Paper
23C54A7	0	11MAR99	17MAR99	0	Tank S-103 Perform Assessment/Review/Approve Prg
23C54A8	5	18MAR99	24MAR99	0	Tank S-103 Management review & approval
23C14B1	2	14JAN99	15JAN99	0	Tank S-106 Review ANOVA Results
23C54B2	5	18JAN99	22JAN99	0	Tank S-106 Gather Process Data (EVAP/FLOW Rate)
23C14B3	5	28JAN99	29JAN99	0	Tank S-106 Perform Calculations
23C54B4	3	01FEB99	03FEB99	0	Tank S-106 Prepare Appendix to SD
23C54B5	15	04FEB99	20FEB99	0	Tank S-106 Write Supporting Document
23C55A	10	15OCT98	25OCT98	79	Tank S-103 Plan OTP

Activity ID	Orig Dwr	Early Start	Early Finish	Total Float	
23C66B	10	15OCT98	28OCT98	71	Tank S-103 Engineering Plan OTP Saltwell Sys
23C66D	12	10DEC98	28DEC98	43	Tank S-103 Perform OTP
23C66E	10	30DEC98	13JAN99	43	Tank S-103 OTP Closeout
23C66A	10	27OCT98	08NOV98	72	Tank S-103 Hydro - Planning (1 Xtr Line)
23C66B	1	10NOV98	10NOV98	72	Tank S-103 Hydro - Stage Equipment
23C66C	4	11NOV98	16NOV98	72	Tank S-103 Hydro - Set Up
23C66D	3	21JAN99	25JAN99	30	Tank S-103 Hydro - Perform Hydro Test
23C66E	5	26JAN99	01FEB99	30	Tank S-103 Hydro - Reconfig Pss/Restore
23C62A	20	27OCT98	23NOV98	68	Tank S-103 P4 Impr/Mod Cover Blks Planning
23C62B	1	24NOV98	24NOV98	68	Tank S-103 P4 Impr/Mod Cover Blks Stage Eqp
23C62C	3	29JAN99	02FEB99	27	Tank S-103 P4 Impr/Mod Cover Blks Field Work
23C62D	1	03FEB99	03FEB99	27	Tank S-103 P4 Impr/Mod Cover Blks
23C62E	2	04FEB99	05FEB99	27	Tank S-103 P4 Impr/Mod Cover Blks Restoration
23C64A	10	19JAN99	01FEB99	30	Tank S-103 Planning
23C64B	1	02FEB99	02FEB99	30	Tank S-103 Stage/Prep Equipment
23C64C	4	08FEB99	11FEB99	27	Tank S-103 Part Loose/Install Screen
23C64D	1	12FEB99	12FEB99	27	Tank S-103 Restoration
23C72A	20	04FEB99	01MAR99	15	Tank S-103 White Xtr Procedure for SW Pumping
23C72B	2	23MAR99	24MAR99	0	Tank S-103 Perform Mgt Assessment Pre-Start
23C72C	2	23MAR99	28MAR99	0	Tank S-103 Perform Patrick's for SW Pumping
1.01.02.01.04.48.03.02 Pump Tank S-103					
23C72D1	212	27MAR99	24OCT99	0	Pump Tank S-103
23C72D2	145	28MAR99	21OCT99	1,238	Tank S-103 Part Weekly Flush during SW Pumping
1.01.02.01.04.48.03.03 SWP System Maint & Operability Tank S-103					

Activity ID	Orig Dsr	Early Start	Early Finish	Total Float
23C88A	145	29AUG98	21OCT98	1,238
23C88D	135	29AUG98	21OCT98	1,238
1.01.02.01.04.45.03.04 Isolation & Intrusion Prevention Tank S-103				
23C78A1	5	24OCT03	30OCT03	0
23C78A2	1	31OCT03	31OCT03	35
23C78B1	80	31OCT03	25DEC03	0
23C78B2	2	24DEC03	29DEC03	0
23C78B3	10	30DEC03	13JAN04	0
23C80A	30	18SEP03	30OCT03	48
23C80B	10	08NOV03	14NOV03	37
23C80C	10	14JAN04	27JAN04	0
23C80D	10	28JAN04	10FEB04	0
23C80E	20	11FEB04	10MAR04	0
23C80F	0		10MAR04	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				
23D06C	5	14AUG98	20AUG98	70
23D10B	25	14AUG98	18SEP98	77
23D10D	25	21AUG98	25SEP98	83
23D10E	25	21AUG98	25SEP98	82
23D10R	25	21AUG98	25SEP98	88
23D10L	30	21AUG98	02OCT98	1,457
23D15A	30	05OCT98	13NOV98	1,457
23D20A	15	16NOV98	08DEC98	1,457

Tank S-103 (Annual) CM

Tank S-103 (Annual) PM Skid Mounted Equipment

Tank S-103 Prepare WP for In-Tank Video

Tank S-103 Perform In-Tank Video

Tank S-103 Evaluate SW Pumping Data

Tank S-103 Evaluate In-Tank Video Data

Tank S-103 Prep-Justif Letter/Declare Complete

Tank S-103 P&ID Isolation Design

Tank S-103 Isolation Planning

Tank S-103 Isolation Stage Equipment

Tank S-103 Isolation Work

Tank S-103 Isolation Complete Documentation

Tank S-103 Tank Stabilization/Isolation Compl

Tank S-106 Per Tank Walkdown

Tank S-106 Inst Dsn - Upgr Pump/Inst Ctrl Skid

Tank S-106 Prep/Inst EGN Cover Block Model

Tank S-106 Prep Dsn Media to Install FQ Monitor

Tank S-106 Inst Dsn - SWP Screen

Tank S-106 Inst Dsn - Install Pump Jumper

Tank S-106 Mod Existing Pump Jumper (1 ea)

Tank S-106 Plan/Modify Pump

Activity ID	Orig Due	Early Start	Early Finish	Total Float												
					1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
23D208		10/18NOV98	01DEC98	1,458												
					Tank S-108 Plan Run-in											
23D20C		3/02DEC98	04DEC98	1,458												
					Tank S-108 Pump Run-in											
23D30A		7/14SEP98	25SEP98	82												
					Tank S-108 FGM Planning											
23D30B		5/26SEP98	02OCT98	82												
					Tank S-108 FGM Install											
23D30C		2/08OCT98	05OCT98	82												
					Tank S-108 FGM Perform Calibration											
23D30D		3/05OCT98	07OCT98	82												
					Tank S-108 FGM Perform OTP											
23D40A		10/21AUG98	03SEP98	88												
					Tank S-108 Exhaustor Planning											
23D40B		5/28AUG98	03SEP98	88												
					Tank S-108 Barge Materials											
23D40C		6/15SEP98	22SEP98	99												
					Tank S-108 (OTP) Exhaustor											
23D45B		2/21SEP98	19OCT98	77												
					Tank S-108 Upgrade P/C Skid											
23D50A		1/14SEP98	23SEP98	88												
					Tank S-108 Saltwell Screen Planning											
23D50B		1/28SEP98	25SEP98	88												
					Tank S-108 Saltwell Screen - Storage & Prep											
23D50C		2/28SEP98	30SEP98	88												
					Tank S-108 Saltwell Screen - Install											
23D60C		1/01OCT98	01OCT98	88												
					Tank S-108 Saltwell Screen - Reclamation											
23D64A1		3/23NOV98	23NOV98	3												
					Tank S-108 Review/Verify Profile Sht Complete											
23D64A2		5/30NOV98	04DEC98	31												
					Tank S-108 Calc Inputs for Time 25% LFL Detenn											
23D64A3		2/07DEC98	08DEC98	31												
					Tank S-108 Calc Inputs for Time 25% LFL Detenn											
23D64A4		2/07DEC98	08DEC98	31												
					Tank S-108 Detenn OCRT Time to 25% LFL Detenn											
23D64A5		6/11JAN99	18JAN99	5												
					Tank S-108 Compl Competability Compliance Table											
23D64A6		3/19JAN99	21JAN99	5												
					Tank S-108 Write/Review Issue Write Paper											
23D64A7		3/22JAN99	28JAN99	5												
					Tank S-108 Perform Assessment/Review/Approve Pkg											
23D64A8		5/29JAN99	04FEB99	5												
					Tank S-108 Management review & approval											
23D64B1		2/23NOV98	24NOV98	5												
					Tank S-108 Review AMOVA Results											

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23D64B2	5	28NOV98	03DEC98	5	Tank S-106 Gather Process Data (EVAP/FLOW Rate)
23D64B3	5	04DEC98	10DEC98	0	Tank S-106 Perform Calculations
23D64B4	3	11DEC98	13DEC98	0	Tank S-106 Prepare Appendix to SD
23D64B5	15	16DEC98	01JAN99	5	Tank S-106 Write Supporting Document
23D65A	10	14AUG98	27AUG98	100	Tank S-106 Plan OTP
23D65B	10	14AUG98	27AUG98	100	Tank S-106 Engineering Plan OTP Software Sys
23D65C	12	01OCT98	16OCT98	77	Tank S-106 Perform OTP
23D65E	10	18NOV98	04DEC98	1,450	Tank S-106 OTP Closeout
23D66A	10	14AUG98	27AUG98	97	Tank S-106 Hydro - Planning (1 Xfr Line)
23D66B	1	28AUG98	28AUG98	97	Tank S-106 Hydro - Stage Equipment
23D66C	4	31AUG98	03SEP98	97	Tank S-106 Hydro - Set Up
23D66D	3	21JAN99	25JAN99	4	Tank S-106 Hydro - Perform Hydro Test
23D66E	5	26JAN99	01FEB99	4	Tank S-106 Hydro - Recording Pits/Restore
23D67A	20	28AUG98	28SEP98	83	Tank S-106 Pit Jmp/Mod Cover Bldg Planning
23D67B	1	28SEP98	28SEP98	83	Tank S-106 Pit Jmp/Mod Cover Bldg Stage Equip
23D67C	3	29JAN99	02FEB99	0	Tank S-106 Pit Jmp/Mod Cover Bldg Field Work
23D67D	1	03FEB99	03FEB99	0	Tank S-106 Pit Jmp/Mod Cover Bldg
23D67E	2	04FEB99	05FEB99	0	Tank S-106 Pit Jmp/Mod Cover Bldg Restoration
23D68A	10	25JAN99	05FEB99	0	Tank S-106 Planning
23D68B	1	05FEB99	05FEB99	0	Tank S-106 Stage/Prep Equipment
23D68C	4	09FEB99	12FEB99	0	Tank S-106 Port Line/Install Screen
23D68D	1	16FEB99	16FEB99	0	Tank S-106 Restoration
23D72A	20	21SEP98	10OCT98	77	Tank S-106 Write Xfr Procedure for SW Pumping

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23D726	2	06FEB99	04FEB99	5	
23D72C	2	05FEB99	06FEB99	5	
1.01.02.01.04.45.05.02 Pump Tank S-106					
23D72D1	559	17FEB99	15JUL00	0	
23D72D2	333	17FEB99	14JUL00	1,056	
1.01.02.01.04.45.05.03 SWP System Maint & Operability Tank S-106					
23D68A	358	17FEB99	17JUL00	1,055	
23D68B	355	17FEB99	13JUL00	1,059	
1.01.02.01.04.45.05.04 Isolation & Intrusion Prevention Tank S-106					
23D78A1	5	24OCT03	30OCT03	0	
23D78A2	1	31OCT03	31OCT03	35	
23D78B1	80	31OCT03	29DEC03	0	
23D78B2	2	24DEC03	25DEC03	0	
23D78B3	10	30DEC03	13JAN04	0	
23D60A	30	19SEP03	30OCT03	48	
23D60B	10	03NOV03	14NOV03	37	
23D60C	10	14JAN04	27JAN04	0	
23D60D	10	28JAN04	10FEB04	0	
23D60E	20	11FEB04	10MAR04	0	
23D60F	0		10MAR04	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					
23E09C	5	23MAR00	28MAR00	25	
23E10A	30	23MAR00	09MAY00	25	
23E10D	25	30MAR00	03MAY00	70	
					Tank S-106 Perform Hgt Assessment/ Pre-Start Tank S-106 Perform Preseq's for SW Pumping Pump Tank S-106 Tank S-106 Per Weekly Flush during SW Pumping Tank S-106 (Annual) Ctl Tank S-106 (Annual) PM Tank S-106 Prepare WP for In-Tank Video Tank S-106 Perform In-Tank Video Tank S-106 Evaluate SW Pumping Data Tank S-106 Evaluate In-Tank Video Data Tank S-106 Prep Justif Letters/Decisions Complete Tank S-106 Ptl Isolation Design Tank S-106 Isolation Planning Tank S-106 Isolation Stage Equipment Tank S-106 Isolation Work Tank S-106 Isolation Complete Documentation Tank S-106 Tank Stabilization/Isolation Compl
					Tank S-107 Per Tank Wtdown Tank S-107 Can Prep & Inr Ctl Std Tank S-107 Prep/Appro ECN Cover Block Modl

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23E10E	25	30MAY00	03MAY00	58	Tank S-107 Prep Dash Media to Install FG Monitor
23E10L	30	30MAY00	10MAY00	30	Tank S-107 Install Osn - Install Pump Jumper
23E15A	30	11MAY00	22JUN00	30	Tank S-107 Mod Existing Pump Jumper (1 ea)
23E20A	18	25JUN00	17JUL00	30	Tank S-107 Plan/Modify Pump
23E20B	10	25JUN00	10JUL00	30	Tank S-107 Plan Run-In
23E20C	3	11JUL00	13JUL00	30	Tank S-107 Pump Run-In
23E30A	10	20APR00	03MAY00	58	Tank S-107 FGM Planning
23E30B	5	04MAY00	10MAY00	58	Tank S-107 FGM Install
23E30C	2	18MAY00	17MAY00	59	Tank S-107 FGM Perform Calibration
23E30D	3	11MAY00	18MAY00	58	Tank S-107 FGM Perform QTP
23E45B	20	04MAY00	01JUN00	25	Tank S-107 Upgrade PIC Skid
23E54A1	3	30MAY00	01JUN00	15	Tank S-107 Runname/Verify Profile Shd Complete
23E54A2	8	02JUN00	08JUN00	41	Tank S-107 Calc Inputs for Time 25% LFL Detenn
23E54A3	2	06JUN00	12JUN00	41	Tank S-107 Calc Inputs for Time 25% LFL Detenn
23E54A4	2	09JUN00	12JUN00	41	Tank S-107 Detennn DCRT Time to 25% LFL Detenn
23E54A5	6	13JUL00	20JUL00	15	Tank S-107 Compl Competability Compliance Table
23E54A6	3	21JUL00	25JUL00	16	Tank S-107 Write/Review Issue White Paper
23E54A7	5	28JUL00	01AUG00	15	Tank S-107 Perform Assessment/River/Approve Pkg
23E54A8	5	02AUG00	08AUG00	16	Tank S-107 Management review & approval
23E54B1	2	30MAY00	31MAY00	15	Tank S-107 Review ANOVA Results
23E54B2	5	01JUN00	07JUN00	16	Tank S-107 Gather Process Data (EVAPIFLOW Rate)
23E54B3	8	08JUN00	14JUN00	15	Tank S-107 Perform Calculations
23E54B4	3	15JUN00	19JUN00	16	Tank S-107 Prepare Appendix to SD

Activity ID	Orig Dev	Early Start	Early Finish	Total Float	
23E54B5	16	20JUN00	12JUL00	16	Tank S-107 Write Supporting Document
23E56A	10	23MAR00	05APR00	76	Tank S-107 Plan OTP
23E56B	10	23MAR00	06APR00	76	Tank S-107 Engineering Plan OTP Subwell Sys
23E56C	12	16MAY00	01JUN00	49	Tank S-107 Perform OTP
23E56E	10	28JUN00	13JUL00	30	Tank S-107 OTP Closeout
23E56A	10	23MAR00	05APR00	84	Tank S-107 Hydro - Planning (1 X1 Line)
23E56B	4	06APR00	06APR00	84	Tank S-107 Hydro - Stage Equipment
23E56C	4	07APR00	12APR00	84	Tank S-107 Hydro - Set Up
23E56D	8	13APR00	17APR00	84	Tank S-107 Hydro - Perform Hydro Test
23E56E	5	18APR00	24APR00	84	Tank S-107 Hydro - Recording Pits/Restore
23E52A	20	06APR00	03MAY00	70	Tank S-107 Pk Impr/Mod Cover Bldg Planning
23E52B	1	04MAY00	04MAY00	70	Tank S-107 Pk Impr/Mod Cover Bldg Stage Eqp
23E52C	3	05MAY00	08MAY00	70	Tank S-107 Pk Impr/Mod Cover Bldg Field Work
23E52D	1	10MAY00	10MAY00	70	Tank S-107 Pk Impr/Mod Cover Bldg
23E52E	2	11MAY00	12MAY00	70	Tank S-107 Pk Impr/Mod Cover Bldg Restoration
23E54A	10	23MAR00	05APR00	97	Tank S-107 Planning
23E54B	1	15MAY00	15MAY00	70	Tank S-107 Stage/Prep Equipment
23E54C	4	14JUL00	19JUL00	30	Tank S-107 Part Lance/Ingrain Screen
23E54D	1	20JUL00	20JUL00	30	Tank S-107 Restoration
23E72A	20	04MAY00	01JUN00	59	Tank S-107 Write Air Procedures for SW Pumping
23E72B	2	07AUG00	08AUG00	19	Tank S-107 Perform Mgt Assessment Pre-Start
23E72C	2	09AUG00	10AUG00	15	Tank S-107 Perform Pressure for SW Pumping
1.01.02.01.04.45.07.02 Pump Tank S-107					
23E72D1	2	11MAY00	30MAY00	0	Pump Tank S-107

Activity ID	Orig Day	Early Start	Early Finish	Total Float	☐ FY99FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13
22E7202	144	01SEP00	30MAR01	878	☐ Tank S-107 Perf Weekly Flush during SW Pumping
1.01.02.01.04.45.07.03 SWP System Maint & Operability Tank S-107					☐ Tank S-107 (Annual) CM ☐ Tank S-107 (Annual) PM
22E68A	144	01SEP00	30MAR01	878	
22E68B	144	01SEP00	30MAR01	878	
1.01.02.01.04.45.07.04 Isolation & Intrusion Prevention Tank S-107					
22E78A1	5	24OCT03	30OCT03	0	Tank S-107 Prepare VFP for In-Tank Video
22E78A2	1	31OCT03	31OCT03	35	Tank S-107 Perform In-Tank Video
22E78B1	60	31OCT03	29DEC03	0	Tank S-107 Evaluate SW Pumping Data
22E78B2	2	24DEC03	29DEC03	0	Tank S-107 Evaluate In-Tank Video Data
22E78B3	10	30DEC03	13JAN04	0	Tank S-107 Prep Justif Letter/Decade Complete
22E90A	30	18SEP03	30OCT03	68	Tank S-107 PH Isolation Design
22E90B	10	06NOV03	14NOV03	37	Tank S-107 Isolation Planning
22E90C	10	14JAN04	27JAN04	70	Tank S-107 Isolation Stage Equipment
22E90D	10	28JAN04	10FEB04	0	Tank S-107 Isolation Work
22E90E	20	11FEB04	10MAR04	0	Tank S-107 Isolation Complete Documentation
22E90F	0		10MAR04	0	Tank S-107 Tank Stabilization/Isolation Compl
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					
22083H1	30	14JUL03	22AUG03	238	Tank S-108 PH Isolation Design
22083H2	10	26JUL03	06AUG03	246	Tank S-108 Isolation Planning
22083H3	10	26AUG03	08SEP03	238	Tank S-108 Isolation Stage Equipment
22083H4	10	09SEP03	23SEP03	238	Tank S-108 Isolation Work
22083H5	20	23SEP03	20OCT03	238	Tank S-108 Isolation Complete Documentation
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					

	Activity ID	Orig. Der.	Early Start	Early Finish	Total Float	
23F05C		6/01MAY00	07MAY00		21	Tank S-109 Per Tank Walkdown
23F10B		25/03MAR00	04APR00		49	Tank S-109 Incl Den - Upgr Pump/Intr Cld Blvd
23F10D		25/03MAR00	11APR00		61	Tank S-109 Prep/Aspr ECM Cover Block Modif
23F10E		25/03MAR00	11APR00		49	Tank S-109 Prep Den Media to Install FG Monitor
23F10K		25/03MAR00	11APR00		64	Tank S-100 Incl Den - SWP Screen
23F10L		30/03MAR00	18APR00		21	Tank S-109 Incl Den - Install Pump Jumper
23F15A		30/19APR00	31MAY00		21	Tank S-109 Mod Existing Pump Jumper (1 ea)
23F20A		15/01JUN00	21JUN00		21	Tank S-108 Plan/Modify Pump
23F20B		10/01JUN00	14JUN00		21	Tank S-109 Plan Run-In
23F30C		3/18JUN00	18JUN00		21	Tank S-109 Pump Run-In
23F30A		10/29MAR00	11APR00		49	Tank S-108 FGM Planning
23F30B		3/12APR00	18APR00		49	Tank S-109 FGM Install
23F30C		2/24APR00	25APR00		49	Tank S-108 FGM Perform Calibration
23F30D		3/19APR00	21APR00		49	Tank S-109 FGM Perform OYP
23F40K		10/30MAR00	21MAR00		77	Tank S-109 Exhauster Planning
23F40B		3/18MAR00	21MAR00		77	Tank S-109 Stage Materials
23F40G		8/30MAR00	05APR00		77	Tank S-109 (OTP) Exhauster
23F45B		20/05APR00	02MAY00		44	Tank S-109 Upgrade PIC Blvd
23F50A		10/29MAR00	11APR00		64	Tank S-109 Saltwell Screen Planning
23F50B		1/12APR00	12APR00		64	Tank S-109 Saltwell Screen - Stage & Prep
23F50C		2/13APR00	12APR00		64	Tank S-109 Saltwell Screen - Install
23F50D		1/17APR00	17APR00		64	Tank S-109 Saltwell Screen - Restoration
23F54A1		9/09MAY00	10MAY00		30	Tank S-109 Review/Verify Profile Sht Complete

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
23F54A2	5	11MAY00	17MAY00	56	Tank S-109 Calc Inputs for Time 25% LFL Detenn
23F54A3	2	18MAY00	19MAY00	56	Tank S-109 Calc Inputs for Time 25% LFL Detenn
23F54A4	2	18MAY00	19MAY00	56	Tank S-109 Detenn DCRT Time to 25% LFL Detenn
23F54A5	6	20JUN00	27JUN00	30	Tank S-109 Compl Compability Compliance Table
23F54A6	3	28JUN00	30JUN00	30	Tank S-109 Write Review Issue White Paper
23F54A7	6	05JUL00	11JUL00	30	Tank S-109 Perform Assessment/Revw/Approve Prog
23F54A8	5	12JUL00	18JUL00	30	Tank S-109 Management review & approval
23F54B1	2	08MAY00	09MAY00	30	Tank S-109 Review ANOVA Results
23F54B2	6	10MAY00	16MAY00	30	Tank S-108 Gather Process Data (EVAP/FLW/Rate)
23F54B3	5	17MAY00	23MAY00	30	Tank S-108 Perform Calculations
23F54B4	3	24MAY00	26MAY00	30	Tank S-108 Prepare Appendix to BD
23F54B5	16	30MAY00	16JUN00	30	Tank S-108 Write Supporting Document
23F59A	10	01MAR00	11MAR00	67	Tank S-108 Plan OTP
23F59B	10	01MAR00	11MAR00	67	Tank S-109 Engineering Plan OTP Software Sys
23F59D	12	17APR00	02MAY00	44	Tank S-109 Perform OTP
23F59E	10	06JUN00	16JUN00	21	Tank S-108 OTP Closeout
23F60A	70	01MAR00	11MAR00	75	Tank S-109 Hydro - Planning (1 Xir Line) (3)
23F60B	1	15MAR00	15MAR00	75	Tank S-108 Hydro - Stage Equipment (3)
23F60C	4	18MAR00	21MAR00	75	Tank S-109 Hydro - Set Up (3)
23F60D	3	22MAR00	24MAR00	75	Tank S-109 Hydro - Perform Hydro Test (3)
23F60E	5	27MAR00	31MAR00	75	Tank S-109 Hydro - Recording Plots/Reslors (3)
23F62A	20	18MAR00	11APR00	61	Tank S-109 Pd Jmp/Mod Cover Blks Planning
23F62B	1	12APR00	12APR00	61	Tank S-109 Pd Jmp/Mod Cover Blks Stage Eqp

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float												
					FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
23F62C		3 13APR00	17APR00	04												
23F62D		1 16APR00	16APR00	51												
23F62E		2 19APR00	20APR00	61												
23F64A		10 07APR00	20APR00	51												
23F64B		1 19JUN00	19JUN00	24												
23F64C		4 20JUN00	23JUN00	24												
23F64D		1 26JUN00	28JUN00	21												
23F72A		20 05APR00	02MAY00	57												
23F72B		2 23JUN00	28JUN00	21												
23F72C		2 27JUN00	28JUN00	21												
1.01.02.01.04.45.09.02 Pump Tank S-109																
23F72D1		427 01AUG00	01OCT01	0												
23F72D2		283 01AUG00	27SEP01	752												
1.01.02.01.04.45.09.03 SWP System Maint & Operability Tank S-109																
23F88A		296 01AUG00	27SEP01	782												
23F88B		293 01AUG00	27SEP01	753												
1.01.02.01.04.45.09.04 Isolation & Intrusion Prevention Tank S-109																
23F78A1		5 24OCT03	30OCT03	0												
23F78A2		1 31OCT03	31OCT03	93												
23F78B1		50 31OCT03	28DEC03	0												
23F78B2		2 24DEC03	28DEC03	0												
23F78B3		10 30DEC03	13JAN04	0												
23F80A		30 19SEP03	30OCT03	48												
23F80B		10 03NOV03	14NOV03	37												

For A-100

FY00 FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13

Tank S-109 PR Imprimed Cover Bldg Floor Work

Tank S-109 PR Imprimed Cover Bldg

Tank S-109 PR Imprimed Cover Bldg Restoration

Tank S-109 Planning

Tank S-109 Stage/Prep Equipment

Tank S-109 Perf Uncasimball Screen

Tank S-109 Restoration

Tank S-109 Write X/R Procedure for SW Pumping

Tank S-109 Perform Mgt Assessment Pre-Start

Tank S-109 Perform Prepqs for SW Pumping

Pump Tank S-109

Tank S-109 Perf Weekly Flush during SW Pumping

Tank S-109 (Annual) CM

Tank S-109 (Annual) PM

Tank S-109 Prepare WP for In-Tank Video

Tank S-109 Perform In-Tank Video

Tank S-109 Evaluate SW Pumping Data

Tank S-109 Evaluate In-Tank Video Data

Tank S-109 Prep Jutil Letter/Decide Complete

Tank S-109 PR Isolation Design

Tank S-109 Isolation Planning

Activity ID	Orig Det	Early Start	Early Finish	Total Float	
23F80C		10/14/JAN/04	27/JAN/04	0	
23F80D		10/28/JAN/04	10/FEB/04	0	
23F80E		20/11/FEB/04	10/MAR/04	0	
23F80S		0	10/MAR/04	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		30/14/JUL/03	22/AUG/03	238	
23085J2		10/28/JUL/03	08/AUG/03	248	
23085J3		10/28/AUG/03	08/SEP/03	238	
23085J4		10/08/SEP/03	28/SEP/03	238	
23085J5		20/23/SEP/03	20/OCT/03	238	
23085C		8/17/MAR/00	28/MAR/00	34	
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		30/17/MAR/00	27/APR/00	48	
23G10D		25/24/MAR/00	27/APR/00	72	
23G10E		25/24/MAR/00	27/APR/00	59	
23G10K		25/24/MAR/00	27/APR/00	75	
23G10L		30/24/MAR/00	04/MAY/00	31	
23G15A		30/06/MAY/00	18/JUN/00	31	
23G20A		15/19/JUN/00	11/JUL/00	31	
23G20B		10/18/JUN/00	30/JUN/00	31	
23G20C		5/05/JUL/00	07/JUL/00	31	
23G30A		10/14/APR/00	27/APR/00	58	
23G30B		5/28/APR/00	04/MAY/00	59	
1.EY08.EY09.EY01.EY02.EY03.EY04.EY05.EY06.EY07.EY08.EY09.EY10.EY11.EY12.EY13					
Tank S-109 Isolation Stage Equipment					
Tank S-109 Isolation Work					
Tank S-109 Isolation Complete Documentation					
Tank S-109 Tank Stabilization/Isolation Comp					
Tank S-110 Pit Isolation Design					
Tank S-110 Isolation Planning					
Tank S-110 Isolation Stage Equipment					
Tank S-110 Isolation Work					
Tank S-110 Isolation Complete Documentation					
Tank S-111 Per Tank Walkdown					
Tank S-111 Den Pumping & Intr Crt Skid					
Tank S-111 Prep/Appro EGN Cover Block Model					
Tank S-111 Prep Den Media to Install FG Monitor					
Tank S-111 Inst Den - SWP Screen					
Tank S-111 Inst Den - Install Pump Jumper					
Tank S-111 Mod Existing Pump Jumper (1 ea)					
Tank S-111 Plant/Supply Pump					
Tank S-111 Plant Run-In					
Tank S-111 Pump Run-In					
Tank S-111 FGM Planning					
Tank S-111 FGM Install					

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
23G300	2	10MAY00	11MAY00	59	Tank S-111 FGM Perform Calibration
23G305	3	08MAY00	09MAY00	58	Tank S-111 FGM Perform OTP
23G404	10	24MAR00	06APR00	88	Tank S-111 Exhauster Planning
23G406	5	31MAR00	06APR00	88	Tank S-111 Stage Materials
23G408	6	17APR00	24APR00	88	Tank S-111 (OTP) Exhauster
23G488	20	06JUN00	26JUN00	26	Tank S-111 Upgrade PIC Stud
23G524	10	14APR00	27APR00	75	Tank S-111 Saltwell Screen Planning
23G508	1	28APR00	28APR00	75	Tank S-111 Saltwell Screen - Blage & Prep
23G500	2	01MAY00	02MAY00	75	Tank S-111 Saltwell Screen - Install
23G500	1	03MAY00	03MAY00	75	Tank S-111 Saltwell Screen - Restoration
23G54A1	3	24MAY00	26MAY00	18	Tank S-111 Renew/Vandy Profile SH, Complete
23G54A2	5	30MAY00	06JUN00	44	Tank S-111 Calc Inputs for Time 25% LFL Determin
23G54A3	2	06JUN00	07JUN00	44	Tank S-111 Calc Inputs for Time 25% LFL Determin
23G54A4	2	08JUN00	09JUN00	44	Tank S-111 Determin DCRT Time to 25% LFL Determin
23G54A5	5	10JUL00	17JUL00	18	Tank S-111 Compl Competability Compliance Table
23G54A6	3	18JUL00	20JUL00	18	Tank S-111 Write/Review Issue White Paper
23G54A7	5	24JUL00	27JUL00	18	Tank S-111 Perform Assessment/Write/Approve Pkg
23G54A8	5	28JUL00	03AUG00	18	Tank S-111 Management review & approval
23G54B1	2	24MAY00	25MAY00	18	Tank S-111 Review ANOVA Results
23G54B2	5	28MAY00	02JUN00	18	Tank S-111 Gather Process Data (EVAP/Flow Rate)
23G54B3	5	05JUN00	09JUN00	18	Tank S-111 Perform Calculations
23G54B4	3	12JUN00	14JUN00	18	Tank S-111 Prepare Appendix to SD
23G54B5	15	15JUN00	07JUL00	18	Tank S-111 Write Supporting Document

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23G50A	10	17MAR00	30MAR00	72	Tank S-111 Plan OTP
23G50B	10	17MAR00	30MAR00	72	Tank S-111 Engineering Plan OTP Software Sys
23G50C	12	14JUN00	26JUN00	25	Tank S-111 Perform OTP
23G50E	10	30JUN00	17JUL00	25	Tank S-111 OTP Closeout
23G50A	10	17MAR00	30MAR00	66	Tank S-111 Hydro - Planning (1 Xtr Line) (2)
23G50B	1	31MAR00	31MAR00	66	Tank S-111 Hydro - Stage Equipment (2)
23G50C	2	05APR00	08APR00	66	Tank S-111 Hydro - Set Up (2)
23G50D	3	07APR00	11APR00	66	Tank S-111 Hydro - Perform Hydro Test (2)
23G50E	3	12APR00	18APR00	66	Tank S-111 Hydro - Reconfig P&ID/Restore (2)
23G52A	20	31MAR00	27APR00	72	Tank S-111 Pil Jnstr/Mod Cover Bkts Planning
23G52B	1	28APR00	28APR00	72	Tank S-111 Pil Jnstr/Mod Cover Bkts Stage Eqp
23G52C	3	01MAY00	03MAY00	72	Tank S-111 Pil Jnstr/Mod Cover Bkts Field Work
23G52D	1	04MAY00	04MAY00	72	Tank S-111 Pil Jnstr/Mod Cover Bkts
23G52E	2	05MAY00	08MAY00	72	Tank S-111 Pil Jnstr/Mod Cover Bkts Restoration
23G54A	10	30JUN00	17JUL00	25	Tank S-111 Planning
23G54B	1	18JUL00	18JUL00	25	Tank S-111 Stage/Prep Equipment
23G54C	4	18JUL00	24JUL00	25	Tank S-111 Perf Lances/Inlets/Screen
23G54D	1	25JUL00	25JUL00	25	Tank S-111 Restoration
23G72A	20	18JUN00	18JUL00	28	Tank S-111 Write Xtr Procedure for SW Pumping
23G72B	2	05AUG00	05AUG00	18	Tank S-111 Perform Mgt Assessment/Pre-Start
23G72C	2	06AUG00	07AUG00	18	Tank S-111 Perform Preops for SW Pumping
1.01.02.04.05.11.02 Pump Tank S-111					
23G72D1	488	01SEP00	30DEC01	0	Pump Tank S-111
23G72D2	334	01SEP00	03JAN02	688	Tank S-111 Perf Weekly Flush during BW Pumping

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.45.11.03 SWP System Maint & Operability Tank S-111				
23G88A	334	01SEP00	03JAN02	698
23G88B	334	01SEP00	03JAN02	688
1.01.02.01.04.45.11.04 Isolation & Intrusion Prevention Tank S-111				
23G78A1	5	24OCT03	30OCT03	0
23G78A2	1	31OCT03	31OCT03	35
23G78B1	60	31OCT03	29DEC03	0
23G78B2	2	24DEC03	29DEC03	0
23G78B3	10	30DEC03	13JAN04	0
23G80A	30	19SEP03	30OCT03	48
23G80B	10	03NOV03	14NOV03	37
23G80C	10	14JAN04	27JAN04	0
23G80D	10	26JAN04	10FEB04	0
23G80E	20	11FEB04	10MAR04	0
23G84S	0		10MAR04	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	5	16DEC99	22DEC99	16
23H10A	30	16DEC99	31JAN00	163
23H10B	26	23DEC99	31JAN00	176
23H10E	25	23DEC99	31JAN00	163
23H10K	26	23DEC99	31JAN00	16
23H10L	30	23DEC99	07FEB00	136
23H15A	30	08FEB00	21MAR00	136
23H20A	15	22MAR00	11APR00	136

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
1.01.02.01.04.45.11.03 SWP System Maint & Operability Tank S-111				
23G88A	334	01SEP00	03JAN02	698
23G88B	334	01SEP00	03JAN02	688
1.01.02.01.04.45.11.04 Isolation & Intrusion Prevention Tank S-111				
23G78A1	5	24OCT03	30OCT03	0
23G78A2	1	31OCT03	31OCT03	35
23G78B1	60	31OCT03	29DEC03	0
23G78B2	2	24DEC03	29DEC03	0
23G78B3	10	30DEC03	13JAN04	0
23G80A	30	19SEP03	30OCT03	48
23G80B	10	03NOV03	14NOV03	37
23G80C	10	14JAN04	27JAN04	0
23G80D	10	26JAN04	10FEB04	0
23G80E	20	11FEB04	10MAR04	0
23G84S	0		10MAR04	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	5	16DEC99	22DEC99	16
23H10A	30	16DEC99	31JAN00	163
23H10B	26	23DEC99	31JAN00	176
23H10E	25	23DEC99	31JAN00	163
23H10K	26	23DEC99	31JAN00	16
23H10L	30	23DEC99	07FEB00	136
23H15A	30	08FEB00	21MAR00	136
23H20A	15	22MAR00	11APR00	136

Activity ID	Orig Dur	Early Start	Early Finish	Total Float		Y001	Y002	Y003	Y004	Y005	Y006	Y007	Y008	Y009	Y010	Y011	Y012	Y013
23H20B	10	22MAR00	04APR00	15														
23H20C	3	06APR00	07APR00	13														
23H25A	10	18DEC99	31DEC99	5														
23H25B	22	16DEC99	18JAN00	5														
23H25C	3	20MAR00	22MAR00	15														
23H25D	66	23MAR00	23JUN00	13														
23H25E	22	28JUN00	27JUL00	15														
23H25F	1	28JUL00	28JUL00	15														
23H30A	10	25APR00	04MAY00	9														
23H30B	5	09MAY00	13MAY00	9														
23H30C	2	17MAY00	18MAY00	9														
23H30D	3	12MAY00	16MAY00	9														
23H45B	20	30JUN00	31JUL00	47														
23H50A	10	18JAN00	31JAN00	15														
23H50B	1	01FEB00	01FEB00	15														
23H50C	2	02FEB00	03FEB00	15														
23H50D	1	04FEB00	04FEB00	1,167														
23H54A1	3	31JUL00	02AUG00	15														
23H54A2	5	03AUG00	09AUG00	41														
23H54A3	2	10AUG00	11AUG00	41														
23H54A4	2	10AUG00	11AUG00	41														
23H54A5	8	12SEP00	16SEP00	15														
23H54A6	3	20SEP00	22SEP00	15														

Tank S-112 Plan Run-In

Tank S-112 Pump Run-In

Tank S-112 White PM/ISAP

Tank S-112 Plan/Schedule/Obtain Materials

Tank S-112 Obtain Grab Sample

Tank S-112 Analyze Grab Sample

Tank S-112 Issue Lab Analysis Final Report

Tank S-112 Enter Lab Data into TCD

Tank S-112 FGM Planning

Tank S-112 FGM Install

Tank S-112 FGM Perform Calibration

Tank S-112 FGM Perform QTP

Tank S-112 Upgrade P/C Stud

Tank S-112 Saltwell Screen Planning

Tank S-112 Saltwell Screen - Stage & Prep

Tank S-112 Saltwell Screen - Install

Tank S-112 Saltwell Screen - Restoration

Tank S-112 Review/Verify Profile Shd Complete

Tank S-112 Calc Inputs for Time 25% LFL Determin

Tank S-112 Calc Inputs for Time 25% LFL Determin

Tank S-112 Determine DCRT Time to 25% LFL Determin

Tank S-112 Compl Compositivity Compliance Table

Tank S-112 Write/Review Issue White Paper

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	1FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13FY14FY15FY16FY17FY18FY19FY20FY21FY22FY23FY24FY25FY26FY27FY28FY29FY30FY31FY32FY33FY34FY35FY36FY37FY38FY39FY40FY41FY42FY43FY44FY45FY46FY47FY48FY49FY50FY51FY52FY53FY54FY55FY56FY57FY58FY59FY60FY61FY62FY63FY64FY65FY66FY67FY68FY69FY70FY71FY72FY73FY74FY75FY76FY77FY78FY79FY80FY81FY82FY83FY84FY85FY86FY87FY88FY89FY90FY91FY92FY93FY94FY95FY96FY97FY98FY99
23H5497		5/25SEP00	28SEP00	15	
23H54A5		5/02OCT00	06OCT00	15	
23H54B1		2/31JUL00	01AUG00	15	
23H54B2		5/02AUG00	06AUG00	15	
23H54B3		5/09AUG00	15AUG00	15	
23H54B4		3/18AUG00	18AUG00	18	
23H54B5		15/21AUG00	11SEP00	16	
23H55A		10/28JUN00	11JUL00	49	
23H55B		10/28JUN00	11JUL00	49	
23H55C		12/14JUL00	31JUL00	47	
23H55E		10/01AUG00	14AUG00	47	
23H56A		10/18DEC99	31DEC99	100	
23H56B		1/04JAN00	04JAN00	160	
23H56C		4/05JAN00	10JAN00	160	
23H56D		3/11JAN00	13JAN00	160	
23H56E		5/14JAN00	20JAN00	190	
23H52A		20/04JAN00	31JAN00	178	
23H52B		1/01FEB00	01FEB00	178	
23H52C		3/03FEB00	04FEB00	178	
23H52D		1/07FEB00	07FEB00	178	
23H52E		2/08FEB00	08FEB00	178	
23H54A		10/01AUG00	14AUG00	47	
23H54B		1/15AUG00	15AUG00	47	

- Tank S-112 Perform Assessment/Review/Approve Pkg
- Tank S-112 Management review & approval
- Tank S-112 Review ANOVA Results
- Tank S-112 Gather Process Data (EVAP/FLOW Rate)
- Tank S-112 Perform Calculations
- Tank S-112 Prepare Appendix to SD
- Tank S-112 Write Supporting Document
- Tank S-112 Plan OTP
- Tank S-112 Engineering Plan OTP Sathwell Sys
- Tank S-112 Perform OTP
- Tank S-112 OTP Closeout
- Tank S-112 Hydro - Planning (1 Xir Line)
- Tank S-112 Hydro - Stage Equipment
- Tank S-112 Hydro - Set Up
- Tank S-112 Hydro - Perform Hydro Test
- Tank S-112 Hydro - Reconciling Pits/Reslone
- Tank S-112 Pit Jmpn/Mod Cover Bldg Planning
- Tank S-112 Pit Jmpn/Mod Cover Bldg Stage Eqp
- Tank S-112 Pit Jmpn/Mod Cover Bldg Field Work
- Tank S-112 Pit Jmpn/Mod Cover Bldg
- Tank S-112 Pit Jmpn/Mod Cover Bldg Restoration
- Tank S-112 Planning
- Tank S-112 Stage/Prep Equipment

Activity ID	Org Dur	Early Start	Early Finish	Total Float	
23H74C	18AUG00	21AUG00	47		Tank S-112 Perf Lens/Insptl Screen
23H74D	122AUG00	22AUG00	47		Tank S-112 Restoration
23H72A	2001SEP00	29SEP00	18		Tank S-112 Write Xtr Procedure for SW Pumping
23H72B	209DEC00	08DEC00	16		Tank S-112 Perform Mgt Assessment Pre-Start
23H72C	208DEC00	10DEC00	15		Tank S-112 Perform Prepara for SW Pumping
1.01.02.01.04.45.12.02 Pump Tank S-112					
23H72D1	3309NOV00	30SEP01	0		Pump Tank S-112
23H72D2	2309NOV00	09OCT01	750		Tank S-112 Perf Weekly Flush during SW Pumping
1.01.02.01.04.45.12.03 SWP System Maint & Operability Tank S-112					
23H78A	2309NOV00	09OCT01	750		Tank S-112 (Annual) CM
23H78B	2309NOV00	09OCT01	750		Tank S-112 (Annual) PM
1.01.02.01.04.45.12.04 Isolation & Intrusion Prevention Tank S-112					
23H78A1	524OCT03	30OCT03	0		Tank S-112 Prepare WP for In-Tank Video
23H78A2	131OCT03	31OCT03	35		Tank S-112 Perform In-Tank Video
23H78B1	6031OCT03	28DEC03	0		Tank S-112 Evaluate SW Pumping Data
23H78B2	224DEC03	28DEC03	0		Tank S-112 Evaluate In-Tank Video Data
23H78B3	1030DEC03	13JAN04	0		Tank S-112 Prep Justf Letter/Declara Complete
23H78A	3018SEP03	30OCT03	48		Tank S-112 Pll Isolation Design
23H90B	1003NOV03	14NOV03	37		Tank S-112 Isolation Planning
23H90C	1014JAN04	27JAN04	0		Tank S-112 Isolation Stage Equipment
23H90D	1028JAN04	10FEB04	0		Tank S-112 Isolation Work
23H90E	2011FEB04	10MAR04	0		Tank S-112 Isolation Complete Documentation
23H945	0	10MAR04	0		Tank S-112 Tank Stabilization/Isolation Compl
1.01.02.01.04.45.20 Task Ventilation Sys SST 241-S Tank Farm					
1.01.02.01.04.45.20.01 Tank Ventilation Sys SST 241-S Tank Farm					

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
23B40E	6	14MAY96	21MAY96	82
23D40E	8	04SEP96	14SEP96	99
23F40E	6	23MAR00	29MAR00	77
23G40E	8	07APR00	14APR00	88

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

23G52A	334	01SEP00	03JAN02	688
23G52B1	334	01SEP00	03JAN02	688
23G52B2	334	01SEP00	03JAN02	688
23J52A	272	01MAR02	31MAR03	377
23J52B1	272	01MAR02	31MAR03	377
23J52B2	272	01MAR02	31MAR03	377
0447A	1,288	01JUN98	16JUL03	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	15	02FEB00	23FEB00	853
23B74B	3	02FEB00	04FEB00	885
23B74C	5	24FEB00	01MAR00	853
23B74D	7	02MAR00	10MAR00	853
23B74E	8	13MAR00	20MAR00	853
23B74F	15	21MAR01	10APR01	853
23B74G	3	21MAR01	23MAR01	853
23B74H	5	11APR01	17APR01	853
23B74J	7	18APR01	26APR01	883
23B74K	6	27APR01	04MAY01	863

FY99FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13

Tank S-102 Installation & Tie-In

Tank S-108 Installation & Tie-In

Tank S-109 Installation & Tie-In

Tank S-111 Installation & Tie-In

Tank S-111 Prepare WP for DCRT PM's & CM's

Tank S-111 Perf Preventive Maintenance on DCRT

Tank S-111 Perf Corrective Maintenance on DCRT

Tank SX-101 Prepare WP for DCRT PM's & CM's

Tank SX-101 Perf Preventive Maintenance on DCRT

Tank SX-101 Perf Corrective Maintenance on DCRT

DCRT 244-S for SST 241-S Tank Farm

Farm S Annual Hydro - Planning (FY99)

Farm S Annual Hydro - Stage Equipment (FY99)

Farm S Annual Hydro - Set Up (FY99)

Farm S Annual Hydro - Perform Hydro Test (FY99)

Farm S Annual Hydro - Recount Pits/Restore (FY99)

Farm S Annual Hydro - Planning (FY00)

Farm S Annual Hydro - Stage Equipment (FY00)

Farm S Annual Hydro - Set Up (FY00)

Farm S Annual Hydro - Perform Hydro Test (FY00)

Farm S Annual Hydro - Recount Pits/Restore (FY00)

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
1.01.02.01.04.46 SST 241-SX Tank Farm Stabilization/Isolation					FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13
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					
23J09C	5	29AUG01	03SEP01	21	Tank SX-101 Per Tank Walkdown
23J10B	25	29AUG01	03OCT01	61	Tank SX-101 Install Den - Upper Pump/Inlet Ctrl Skid
23J10C	25	06SEP01	10OCT01	75	Tank SX-101 Prep/Approach EGN Cover/Block Model
23J10E	25	08SEP01	10OCT01	68	Tank SX-101 Prep Den Module to Install FGM Monitor
23J10G	35	28AUG01	17OCT01	49	Tank SX-101 Install Den - Division System
23J10K	25	06SEP01	10OCT01	82	Tank SX-101 Install Den - SWAP Screen
23J10L	30	08SEP01	17OCT01	38	Tank SX-101 Install Den - Install Pump Jumper
23J16A	30	18OCT01	30NOV01	38	Tank SX-101 Mod Existing Pump Jumper (1 ea)
23J15C	15	18OCT01	07NOV01	49	Tank SX-101 Feb Division System (1 ea)
23J20A	15	09DEC01	21DEC01	38	Tank SX-101 Plan/Modify Pump
23J20B	10	03DEC01	13DEC01	38	Tank SX-101 Plan Run-In
23J20C	31	17DEC01	18DEC01	38	Tank SX-101 Pump Run-In
23J25D	25	29AUG01	09OCT01	21	Tank SX-101 Analyze Grab Sample
23J25E	22	10OCT01	08NOV01	21	Tank SX-101 Issue Lab Analysis Final Report
23J25F	1	09NOV01	09NOV01	21	Tank SX-101 Enter Lab Data into TCD
23J30A	10	27SEP01	10OCT01	68	Tank SX-101 FGM Planning
23J30B	6	11OCT01	17OCT01	68	Tank SX-101 FGM Install
23J30C	2	23OCT01	24OCT01	68	Tank SX-101 FGM Perform Calibration
23J30D	3	18OCT01	23OCT01	68	Tank SX-101 FGM Perform OTP
23J42A	10	08NOV01	21NOV01	49	Tank SX-101 Division Sys Planning
23J42B	6	26NOV01	03DEC01	49	Tank SX-101 Stage Materials and Install

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23J45D	1	04DEC01	04DEC01	49	Task SX-101 Functional Test
23J45E	20	04OCT01	31OCT01	61	Task SX-101 Upgrade PIC Skid
23J45A	10	27SEP01	16OCT01	62	Task SX-101 Balboa Screen Planning
23J45B	1	11OCT01	11OCT01	62	Task SX-101 Saltwell Screen - Slope & Prep
23J45C	2	15OCT01	15OCT01	62	Task SX-101 Saltwell Screen - Install
23J45D	1	16OCT01	16OCT01	62	Task SX-101 Saltwell Screen - Restoration
23J44A1	3	15NOV01	14NOV01	24	Task SX-101 Review/Verify Profile BM Complete
23J44A2	6	15NOV01	21NOV01	47	Task SX-101 Calc Inputs for Time 25% LFL Detention
23J44A3	2	26NOV01	27NOV01	47	Task SX-101 Calc Inputs for Time 25% LFL Detention
23J44A4	2	26NOV01	27NOV01	47	Task SX-101 Determine DORT Time to 25% LFL Detention
23J44A5	6	31DEC01	06JAN02	21	Task SX-101 Compl Compatibility Compliance Table
23J44A6	3	06JAN02	11JAN02	21	Task SX-101 WhiteReview Issue White Paper
23J44A7	5	14JAN02	18JAN02	21	Task SX-101 Perform Assessments/Rev/Approve Pkg
23J44A8	6	21JAN02	25JAN02	21	Task SX-101 Management review & approval
23J44B1	2	13NOV01	13NOV01	24	Task SX-101 Review ANOVA Results
23J44B2	5	14NOV01	20NOV01	24	Task SX-101 Gather Process Data (EVAPE/LOW Rate)
23J44B3	6	21NOV01	28NOV01	21	Task SX-101 Perform Calculations
23J44B4	3	30NOV01	04DEC01	21	Task SX-101 Prepare Appendix to SD
23J44B5	15	05DEC01	20DEC01	21	Task SX-101 Write Supporting Document
23J45A	10	29AUG01	12SEP01	64	Task SX-101 Plan OTP
23J45B	10	29AUG01	12SEP01	64	Task SX-101 Engineering Plan OTP Saltwell Sys
23J45D	12	16OCT01	31OCT01	61	Task SX-101 Perform OTP
23J45E	10	06DEC01	16DEC01	38	Task SX-101 OTP Closeout

Activity ID	Orig Dwr	Early Start	Early Finish	Total Float	
23J60A	10	29SEP01	12SEP01	93	Tank SX-101 Hydro - Planning (1 R/L Line) (3)
23J60B	1	13SEP01	13SEP01	93	Tank SX-101 Hydro - Stage Equipment (3)
23J60C	4	14SEP01	16SEP01	93	Tank SX-101 Hydro - Bol Up (3)
23J60D	3	20SEP01	24SEP01	93	Tank SX-101 Hydro - Perform Hydro Test (3)
23J60E	5	25SEP01	01OCT01	93	Tank SX-101 Hydro - Reconciling Pits/Restore (3)
23J62A	20	13BEP01	16OCT01	79	Tank SX-101 P/L Improved Cover B/Ls Planning
23J62B	1	11OCT01	11OCT01	79	Tank SX-101 P/L Improved Cover B/Ls Stage Equip
23J62C	5	12OCT01	16OCT01	79	Tank SX-101 P/L Improved Cover B/Ls Field Work
23J62D	1	17OCT01	17OCT01	79	Tank SX-101 P/L Improved Cover B/Ls
23J62E	2	18OCT01	19OCT01	79	Tank SX-101 P/L Improved Cover B/Ls Restoration
23J64A	10	06DEC01	19DEC01	38	Tank SX-101 Planning
23J64B	1	20DEC01	20DEC01	38	Tank SX-101 Stage/Prop. Equipment
23J64C	4	21DEC01	31DEC01	38	Tank SX-101 Perf Lances/Install Screen
23J64D	1	02JAN02	02JAN02	38	Tank SX-101 Restoration
23J72A	20	07JAN02	01FEB02	14	Tank SX-101 Write X/L Procedure for SW Pumping
23J72B	2	04FEB02	05FEB02	14	Tank SX-101 Perform Mgt Assessment Pre-Start
23J72C	2	06FEB02	07FEB02	14	Tank SX-101 Perform Pre-starts for SW Pumping
1.01.02.01.04.46.01.02 Pump Tank SX-101					
23J72D1	385	01MAR02	31MAR02	0	Pump Tank SX-101
23J72D2	279	01MAR02	27MAR02	379	Tank SX-101 Perf Weekly Flush during SW Pumping
1.01.02.01.04.46.01.03 SWP System Maint & Operability Tank SX-101					
23J85A	279	01MAR02	27MAR02	379	Tank SX-101 (Annual) CM
23J85D	279	01MAR02	27MAR02	379	Tank SX-101 (Annual) PM
1.01.02.01.04.46.01.04 Isolation & Intrusion Prevention Tank SX-101					

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23J78A1	6	24OCT03	30OCT03	0	Tank SX-101 Prepare WP for In-Tank Video
23J78A2	1	31OCT03	31OCT03	35	Tank SX-101 Perform In-Tank Video
23J78B1	60	31OCT03	28DEC03	0	Tank SX-101 Evaluate SW Pumping Data
23J78B2	2	24DEC03	26DEC03	0	Tank SX-101 Evaluate In-Tank Video Data
23J78B3	10	30DEC03	13JAN04	0	Tank SX-101 Prep Justif Letter/Declare Complete
23J80A	30	18SEP03	30OCT03	45	Tank SX-101 Pit Isolation Design
23J80B	10	03NOV03	14NOV03	37	Tank SX-101 Isolation Planning
23J80C	10	14JAN04	27JAN04	0	Tank SX-101 Isolation Stage Equipment
23J80D	10	28JAN04	10FEB04	0	Tank SX-101 Isolation Work
23J80E	20	11FEB04	10MAR04	0	Tank SX-101 Isolation Complete Documentation
23JMS	0		10MAR04	0	Tank SX-101 Tank Stabilization/Isolation Compl
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	5	10JAN01	15JAN01	21	Tank SX-102 Per Tank Walkdown
23K10B	25	10JAN01	13FEB01	184	Tank SX-102 Inst Den - Upper Pump/Inlet Cnt Bld
23K10D	25	17JAN01	21FEB01	152	Tank SX-102 Prep/Aspr EON Cover Block Model
23K10E	25	17JAN01	21FEB01	169	Tank SX-102 Prep Den Media to Install PG Monitor
23K10G	35	10JAN01	28FEB01	152	Tank SX-102 Inst Den - Dilution System
23K10K	25	17JAN01	21FEB01	21	Tank SX-102 Inst Den - SVP Screen
23K10L	30	17JAN01	28FEB01	141	Tank SX-102 Inst Den - Install Pump Jumper
23K16A	30	01MAR01	11APR01	141	Tank SX-102 Mod Existing Pump Jumper (1 ea)
23K15C	15	01MAR01	21MAR01	152	Tank SX-102 Fab Dilution System (1 ea)
23K20A	15	12APR01	02MAY01	141	Tank SX-102 Plan/Modify Pump
23K20B	10	12APR01	25APR01	141	Tank SX-102 Plan Re-Inst

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23K202	3	26APR01	30APR01	141	Tank SX-102 Pump Run-In
23K25A	10	10JAN01	23JAN01	62	Tank SX-102 Write PM/TSAP
23K25B	22	10JAN01	01FEB01	62	Tank SX-102 Plan/Schedule/Obtain Materials
23K25C	3	10APR01	12APR01	21	Tank SX-102 Obtain Grab Sample
23K25D	68	13APR01	17JUL01	21	Tank SX-102 Analyze Grab Sample
23K25E	22	18JUL01	18AUG01	21	Tank SX-102 Issue Lab Analysis Final Report
23K25F	1	17AUG01	17AUG01	21	Tank SX-102 Enter Lab Data into YCD
23K30A	10	07FEB01	21FEB01	169	Tank SX-102 FGM Planning
23K30B	5	22FEB01	28FEB01	169	Tank SX-102 FGM Install
23K30C	2	06MAR01	07MAR01	169	Tank SX-102 FGM Perform Calibration
23K30D	3	01MAR01	05MAR01	169	Tank SX-102 FGM Perform QTP
23K42A	16	22MAR01	04APR01	152	Tank SX-102 Dilation Sys Planning
23K42B	6	06APR01	12APR01	152	Tank SX-102 Stage Materials and Install
23K42D	1	13APR01	13APR01	152	Tank SX-102 Functional Test
23K45B	30	14FEB01	14MAY01	164	Tank SX-102 Upgrade PLC Skid
23K50A	10	07FEB01	21FEB01	21	Tank SX-102 Saltwell Screen Planning
23K50B	1	22FEB01	22FEB01	21	Tank SX-102 Saltwell Screen - Stage 3 Prep
23K50C	2	23FEB01	25FEB01	21	Tank SX-102 Saltwell Screen - Install
23K50D	1	27FEB01	27FEB01	165	Tank SX-102 Saltwell Screen - Restoration
23K54A1	3	20AUG01	22AUG01	21	Tank SX-102 Review/Verify Profile SH Complete
23K54A2	5	23AUG01	28AUG01	47	Tank SX-102 Calc Inputs for Time 25% LFL Deturm
23K54A3	2	30AUG01	31AUG01	47	Tank SX-102 Calc Inputs for Time 25% LFL Deturm
23K54A4	2	30AUG01	31AUG01	47	Tank SX-102 Determine DORT Time to 25% LFL Deturm

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23K54A5	6	09OCT01	09OCT01	21	Tank SX-102 Compst Compliance Compliance Table
23K54A6	3	10OCT01	12OCT01	21	Tank SX-102 Write/Review Issue Write Paper
23K54A7	5	15OCT01	19OCT01	21	Tank SX-102 Perform Assessment/Review/Approve Pkg
23K54A8	5	22OCT01	26OCT01	21	Tank SX-102 Management/Review & approval
23K54B1	2	20AUG01	21AUG01	21	Tank SX-102 Review ANOVA Results
23K54B2	3	25AUG01	28AUG01	21	Tank SX-102 Gather Process Data (EVAPFLOW Rate)
23K54B3	5	29AUG01	03SEP01	21	Tank SX-102 Perform Calculations
23K54B4	3	08SEP01	10SEP01	21	Tank SX-102 Prepare Appendix to S/D
23K54B5	15	11SEP01	19OCT01	21	Tank SX-102 Write Supporting Document
23K56A	10	10JAN01	23JAN01	187	Tank SX-102 Plan OTP
23K56B	10	10JAN01	23JAN01	187	Tank SX-102 Engineering Plan OTP Saltwell Sys
23K58D	12	27FEB01	14MAR01	154	Tank SX-102 Perform OTP
23K58E	10	17APR01	30APR01	141	Tank SX-102 OTP Closeout
23K60A	18	23MAR01	05APR01	145	Tank SX-102 Hydro - Planning (1 Xir Line)
23K60B	1	08APR01	09APR01	145	Tank SX-102 Hydro - Stage Equipment
23K60C	4	09APR01	12APR01	145	Tank SX-102 Hydro - Set Up
23K60D	3	07MAY01	09MAY01	128	Tank SX-102 Hydro - Perform Hydro Test
23K60E	5	10MAY01	16MAY01	128	Tank SX-102 Hydro - Reconfirm Pks/Releasen
23K62A	20	23APR01	18MAY01	120	Tank SX-102 Pk Impr/Mod Cover Bks Planning
23K62B	1	21MAY01	21MAY01	120	Tank SX-102 Pk Impr/Mod Cover Bks Stage Eqp
23K62C	3	30MAY01	01JUN01	115	Tank SX-102 Pk Impr/Mod Cover Bks Field Work
23K62D	1	04JUN01	04JUN01	115	Tank SX-102 Pk Impr/Mod Cover Bks
23K62E	2	05JUN01	06JUN01	115	Tank SX-102 Pk Impr/Mod Cover Bks Reoperation

Activity ID	Org. Dur.	Early Start	Early Finish	Total Float	
23K34A	10	23MAY01	08JUN01	115	Tank SX-102 Planning
23K34B	1	07JUN01	07JUN01	115	Tank SX-102 Stage/Prep Equipment
23K34C	4	08JUN01	13JUN01	115	Tank SX-102 Perf Cancel/Install Screen
23K34D	1	14JUN01	14JUN01	115	Tank SX-102 Restoration
23K72A	20	24SEP01*	18OCT01	24	Tank SX-102 Write Xtr Procedure for SW Pumping
23K72B	2	26OCT01	26OCT01	24	Tank SX-102 Perform Mgt Assessment Pre-Start
23K72C	2	28OCT01	30OCT01	24	Tank SX-102 Perform Presq's for SW Pumping
1.01.02.01.04.46.02.02 Pump Tank SX-102					
23K72D1	568	01DEC01*	01JUN03	0	Pump Tank SX-102
23K72D2	375	09DEC01	02JUN03	333	Tank SX-102 Perf Weekly Flush during SW Pumping
1.01.02.01.04.46.02.03 SWP System Maint & Operability Tank SX-102					
23K68A	375	09DEC01	02JUN03	333	Tank SX-102 (Annual) CM
23K68D	375	09DEC01	02JUN03	333	Tank SX-102 (Annual) PM
1.01.02.01.04.46.02.04 Isolation & Intrusion Prevention Tank SX-102					
23K78A1	5	24OCT03	30OCT03	0	Tank SX-102 Prepare W/P for In-Tank Video
23K78A2	1	31OCT03	31OCT03	33	Tank SX-102 Perform In-Tank Video
23K78B1	60	31OCT03	29DEC03	0	Tank SX-102 Evaluate SW Pumping Data
23K78B2	2	24DEC03	29DEC03	0	Tank SX-102 Evaluate In-Tank Video Data
23K78B3	10	30DEC03	13JAN04	0	Tank SX-102 Prep Justif Letter/Declare Complete
23K80A	30	18SEP03	30OCT03	48	Tank SX-102 Pil Isolation Design
23K80B	10	03NOV03	14NOV03	37	Tank SX-102 Isolation Planning
23K80C	10	14JAN04	27JAN04	0	Tank SX-102 Isolation Stage Equipment
23K80D	10	28JAN04	10FEB04	0	Tank SX-102 Isolation Work
23K80E	20	11FEB04	10MAR04	0	Tank SX-102 Isolation Complete Documentation

Activity ID	Orig Dwr	Early Start	Early Finish	Total Float	
23010B	0	10MAR04	0		<div> <div> FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13 </div> <div> Tank SX-102 Tank Stabilization/Isolation Compl </div> </div>
1.01.02.01.04.45.03 Stabilize and Isolate Tank SX-103					
1.01.02.01.04.45.03.01 Prepare Tank SX-103 for Pumping					
23L05C	6	18APR01*	20APR01	31	Tank SX-103 Per Tank Walkdown
23L10B	25	18APR01	18MAY01	54	Tank SX-103 Inlet Dsn - Upgr Pump/Instr Cal Skid
23L10D	25	23APR01	29MAY01	72	Tank SX-103 Prep/Appro ECH Cover Block Modif
23L10E	25	23APR01	29MAY01	68	Tank SX-103 Prep Dsn Mod to Install FG Monitor
23L103	25	16APR01	04JUN01	42	Tank SX-103 Inlet Dsn - Dilution System
23L10L	30	23APR01	04JUN01	31	Tank SX-103 Inlet Dsn - Install Pump Jumper
23L15A	30	08JUN01	17JUL01	31	Tank SX-103 Mod Existing Pump Jumper (1 ea)
23L15C	16	06JUN01	23JUN01	42	Tank SX-103 Fab Dilution System (1 ea)
23L20A	15	18JUL01	07AUG01	31	Tank SX-103 Plan/Modify Pump
23L20B	10	18JUL01	31JUL01	31	Tank SX-103 Pten Run-In
23L20C	3	01AUG01	03AUG01	31	Tank SX-103 Pump Run-In
23L30A	10	14MAY01	29MAY01	59	Tank SX-103 FGM Planning
23L30B	5	29MAY01	04JUN01	69	Tank SX-103 FGM Install
23L30C	2	08JUN01	11JUN01	69	Tank SX-103 FGM Perform Calibration
23L30D	5	05JUN01	07JUN01	59	Tank SX-103 FGM Perform OTP
23L42A	10	26JUN01	10JUL01	42	Tank SX-103 Dilution Sys Planning
23L42B	6	11JUL01	18JUL01	42	Tank SX-103 Stage Materials and Install
23L42C	1	19JUL01	19JUL01	42	Tank SX-103 Functional Test
23L45B	20	21MAY01	18JUN01	54	Tank SX-103 Upgrade PIC Skid
23L54A1	3	01JUN01*	05JUN01	33	Tank SX-103 Review/Verify Profile Sht Complete
23L54A2	5	06JUN01	12JUN01	58	Tank SX-103 Calc Inputs for Time 25% LFL Determin

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	Activity Description
23L54A3	2	13JUN01	14JUN01	59	Tank SX-103 Calc Inputs for Tank 25% LFL Determin
23L54A4	2	13JUN01	14JUN01	58	Tank SX-103 Determine DORT Time to 26% LFL Determin
23L54A5	6	16JUL01	23JUL01	33	Tank SX-103 Comp Compatibility Compliance Table
23L54A6	3	24JUL01	26JUL01	33	Tank SX-103 Write/Review Issue White Paper
23L54A7	5	27JUL01	02AUG01	33	Tank SX-103 Perform Assessment/Review/Approve Reg
23L54A8	8	05AUG01	08AUG01	33	Tank SX-103 Management review & approval
23L54B1	2	09JUN01	09JUN01	39	Tank SX-103 Review AROVA Results
23L54B2	5	09JUN01	11JUN01	39	Tank SX-103 Gather Process Data (EVAP/FLow Rate)
23L54B3	5	12JUN01	18JUN01	33	Tank SX-103 Perform Calculations
23L54B4	3	19JUN01	21JUN01	33	Tank SX-103 Prepare Appendix to SD
23L54B5	15	22JUN01	13JUL01	33	Tank SX-103 Write Supporting Document
23L6A	10	18APR01	27APR01	77	Tank SX-103 Plan OTP
23L6B	10	18APR01	27APR01	77	Tank SX-103 Engineering Plan OTP Saltwell Sys
23L6C	12	01JUN01	18JUN01	54	Tank SX-103 Perform OTP
23L6D	10	25JUL01	03AUG01	31	Tank SX-103 OTP Closeout
23L6E	10	16APR01	27APR01	68	Tank SX-103 Hydro - Planning (1 Xir Line) (2)
23L6F	1	30APR01	30APR01	68	Tank SX-103 Hydro - Stage Equipment (2)
23L6G	4	01MAY01	04MAY01	68	Tank SX-103 Hydro - Set Up (2)
23L6H	3	07MAY01	09MAY01	68	Tank SX-103 Hydro - Perform Hydro Test (2)
23L6I	5	10MAY01	15MAY01	68	Tank SX-103 Hydro - Recording Pipe/Restore (2)
23L6J	20	30APR01	25MAY01	72	Tank SX-103 Pil Impr/Mod Cover Bldg Planning
23L6K	3	26MAY01	28MAY01	72	Tank SX-103 Pil Impr/Mod Cover Bldg Stage Expt
23L6L	9	30MAY01	01JUN01	72	Tank SX-103 Pil Impr/Mod Cover Bldg Field Work

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23L62D	1	04JUN01	04JUN01	72	Tank SX-103 P4 Jmp/Mod Cover Bbs
23L62E	2	06JUN01	06JUN01	72	Tank SX-103 P4 Jmp/Mod Cover Bbs Restoration
23L64A	10	23JUN01	03AUG01	31	Tank SX-103 Planning
23L64B	1	05AUG01	05AUG01	31	Tank SX-103 Stage/Prep Equipment
23L64C	4	07AUG01	10AUG01	31	Tank SX-103 Part Lance/Install Screen
23L64D	1	13AUG01	13AUG01	31	Tank SX-103 Restoration
23L72A	20	08JUL01	05AUG01	95	Tank SX-103 Write Xr Procedure for SW Pumping
23L72B	2	10AUG01	13AUG01	94	Tank SX-103 Perform Mgt Assessment Pre-Sort
23L72C	2	14AUG01	16AUG01	31	Tank SX-103 Perform Presq's for SW Pumping
1.01.02.01.04.48.03.02 Pump Tank SX-103					
23L72D1	854	01OCT01	18JUL03	0	Pump Tank SX-103
23L72D2	447	01OCT01	18JUL03	304	Tank SX-103 Part Weekly Flush during SW Pumping
1.01.02.01.04.48.03.03 SWP System Maint & Operability Tank SX-103					
23L78A	437	01OCT01	27JUN03	314	Tank SX-108 (Annual) CM
23L78D	437	01OCT01	27JUN03	314	Tank SX-108 (Annual) PM
1.01.02.01.04.48.03.04 Isolation & Intrusion Prevention Tank SX-103					
23L78A1	5	24OCT03	30OCT03	0	Tank SX-103 Prepare W/P for In-Tank Video
23L78A2	1	31OCT03	31OCT03	35	Tank SX-103 Perform In-Tank Video
23L78B1	60	31OCT03	29DEC03	0	Tank SX-103 Evaluate SW Pumping Data
23L78B2	2	24DEC03	28DEC03	0	Tank SX-103 Evaluate In-Tank Video Data
23L78B3	10	30DEC03	13JAN04	0	Tank SX-103 Prep Ausf Letter/Declare Complete
23L80A	30	19SEP03	30OCT03	48	Tank SX-103 P4 Isolation Design
23L80B	10	05NOV03	14NOV03	37	Tank SX-103 Isolation Planning
23L80C	10	14JAN04	27JAN04	0	Tank SX-103 Isolation Siege Equipment

Activity ID	Orig Due	Early Start	Early Finish	Total Float	
23L800	10 25JAN04	10 FEB04		0	FY02FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13 Tank SX-103 Isolation Work
23L80E	20 11FEB04	10MAR04		0	Tank SX-103 Isolation Complete Documentation
23L80S	0	10MAR04		0	Tank SX-103 Tank Stabilization/Isolation Compl
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					
23M7201	609 01JUN98	30JAN00		0	Pump Tank SX-104
23M7202	419 01JUN98	01FEB00		1,170	Tank SX-104 Perf Weekly Flush during SW Pumping
1.01.02.01.04.46.04.03 SWP System Maint & Operability Tank SX-104					
23M798A	419 01JUN98	01FEB00		1,170	Tank SX-104 (Annual) Cal
23M798D	419 01JUN98	01FEB00		1,170	Tank SX-104 (Annual) PM Skid Mounted Equipment
1.01.02.01.04.46.04.04 Isolation & Intrusion Prevention Tank SX-104					
23M729A	409 01JUN98	18JAN00		1,180	Tank SX-104 Prepare W/P for DCRT PM's & CM's
23M729B	409 01JUN98	18JAN00		1,180	Tank SX-104 Perf Preventative Maint on DCRT
23M729C	409 01JUN98	18JAN00		1,180	Tank SX-104 Perf Corrective Maintenance on DCRT
23M79A1	5 24OCT03	30OCT03		0	Tank SX-104 Prepare W/P for In-Tank Video
23M79A2	1 31OCT03	31OCT03		35	Tank SX-104 Perform In-Tank Video
23M79B1	60 31OCT03	28DEC03		0	Tank SX-104 Evaluate SW Pumping Data
23M79B2	2 24DEC03	28DEC03		0	Tank SX-104 Evaluate In-Tank Video Data
23M79B3	10 30DEC03	13JAN04		0	Tank SX-104 Prep Justif Letter/Declare Complete
23M79CA	30 18SEP03	30OCT03		48	Tank SX-104 Pil Isolation Design
23M79CB	10 09NOV03	14NOV03		57	Tank SX-104 Isolation Planning
23M79CC	10 14JAN04	27JAN04		0	Tank SX-104 Isolation Stage Equipment
23M79CD	10 28JAN04	10FEB04		0	Tank SX-104 Isolation Work
23M79CE	20 11FEB04	10MAR04		0	Tank SX-104 Isolation Complete Documentation
23M79CS	0	10MAR04		0	Tank SX-104 Tank Stabilization/Isolation Compl

Activity ID	Orig Det	Early Start	Early Finish	Total Float	
1.01.02.01.04.46.08 Stabilize and Isolate Tank SX-105					1 FEB 98 2 FEB 98 3 FEB 98 4 FEB 98 5 FEB 98 6 FEB 98 7 FEB 98 8 FEB 98 9 FEB 98 10 FEB 98 11 FEB 98 12 FEB 98
1.01.02.01.04.46.05.01 Prepare Tank SX-105 for Pumping					
23N20C		5 08NOV90	15NOV90	31	Tank SX-105 Per Tank Walkdown
23N10B	25	08NOV90	15DEC90	54	Tank SX-105 Install Den - Upper Pump/Water Ctrl Shd
23N10D	25	18NOV90	22DEC90	72	Tank SX-105 Prep/Appro ECH Cover Block Modif
23N10E	25	18NOV90	22DEC90	50	Tank SX-105 Prep Den Media to Install FGM Monitor
23N10G	35	18NOV90	10JAN91	47	Tank SX-105 Install Den - Dilution System
23N10K	25	18NOV90	22DEC90	75	Tank SX-105 Install Den - SWP Screen
23N10L	30	18NOV90	03JAN91	31	Tank SX-105 Install Den - Install Pump Jumper
23N10M	25	18NOV90	22DEC90	52	Tank SX-105 Install Den - Install Vlv Pk Jump (2)
23N15A	30	04JAN91	14FEB91	31	Tank SX-105 Mod Existing Pump Jumper (1 ea)
23N15C	15	11JAN91	31JAN91	47	Tank SX-105 Feb Dilution System (1 ea)
23N15D	40	27DEC90	22FEB91	32	Tank SX-105 Feb Pk Valve Jumper (2)
23N20A	15	18FEB91	06MARCH	31	Tank SX-105 Plan/Modify Pump
23N20B	10	15FEB91	01MARCH	31	Tank SX-105 Plan Run-In
23N20C		3 02MARCH	06MARCH	31	Tank SX-105 Pump Run-In
23N25D	68	01OCT90	01JAN91	299	Tank SX-105 Analyze Grab Sample
23N25E	22	10JAN91	08FEB91	255	Tank SX-105 Issue Lab Analysis Final Report
23N25F	1	08FEB91	08FEB91	255	Tank SX-105 Enter Lab Data into TCD
23N30A	10	11DEC90	22DEC90	39	Tank SX-105 FGM Planning
23N30B	5	27DEC90	03JAN91	58	Tank SX-105 FGM Install
23N30C	2	06JAN91	10JAN91	69	Tank SX-105 FGM Perform Calibration
23N30D	3	04JAN91	06JAN91	59	Tank SX-105 FGM Perform QTP
23N42A	10	18JAN91	31JAN91	47	Tank SX-105 Dilution Eye Planning

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23N42B		8/01FEB01	08FEB01	47	Tank SX-105 Stage Materials and Input
23N42D		1/09FEB01	09FEB01	47	Tank SX-105 Functional Test
23N45B	20/18DEC00	17JAN01		54	Tank SX-105 Upgrade P&ID Skid
23N50A	10/11DEC00	22DEC00		75	Tank SX-105 Saltwell Screen Planning
23N50B	11/27DEC00	27DEC00		75	Tank SX-105 Saltwell Screen - Stage & Prep
23N50C	2/28DEC00	28DEC00		75	Tank SX-105 Saltwell Screen - Install
23N50D	1/02JAN01	02JAN01		75	Tank SX-105 Saltwell Screen - Restoration
23N54A1	3/10JAN01	12JAN01		27	Tank SX-105 Review/Vent Profile Shd Complete
23N54A2	5/15JAN01	19JAN01		53	Tank SX-105 Calc Inputs for Time 25% LFL Detern
23N54A3	2/22JAN01	23JAN01		53	Tank SX-105 Calc Inputs for Time 25% LFL Detern
23N54A4	2/22JAN01	23JAN01		53	Tank SX-105 Detern DCRT Time to 25% LFL Detern
23N54A5	6/22FEB01	01MAR01		27	Tank SX-105 Compl Competability Compliance Tabl
23N54A6	3/02MAR01	08MAR01		27	Tank SX-105 Write/Review Issue White Paper
23N54A7	5/07MAR01	13MAR01		27	Tank SX-105 Perform Assessment/Rev/Approve Pkg
23N54A8	5/14MAR01	20MAR01		27	Tank SX-105 Management review & approval
23N54B1	2/10JAN01	11JAN01		27	Tank SX-105 Review ANOVA Results
23N54B2	5/12JAN01	18JAN01		27	Tank SX-105 Gather Process Data (EVAP/FL/CAV Rate
23N54B3	5/18JAN01	25JAN01		27	Tank SX-105 Perform Calculations
23N54B4	3/28JAN01	30JAN01		27	Tank SX-105 Prepare Appendix to SO
23N54B5	15/31JAN01	21FEB01		27	Tank SX-105 Write Supporting Document
23N55A	10/26NOV00	22NOV00		77	Tank SX-105 Plan QTP
23N55B	10/26NOV00	22NOV00		77	Tank SX-105 Engineering Plan QTP Saltwell Sys
23N56D	12/02JAN01	17JAN01		54	Tank SX-105 Perform QTP

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23N59E	10	21FEB01	08MAR01	31	Tank SX-105 OTP Classroom
23N59A	10	08NOV00	22NOV00	88	Tank SX-105 Hydro - Planning (1 Xtr Less)
23N59B	1	27NOV00	27NOV00	88	Tank SX-105 Hydro - Stage Equipment
23N59C	2	28NOV00	01DEC00	86	Tank SX-105 Hydro - Set Up
23N60D	3	04DEC00	06DEC00	85	Tank SX-105 Hydro - Perform Hydro Test
23N60E	5	07DEC00	13DEC00	83	Tank SX-105 Hydro - Recoring Pits/Restore
23N62A	20	28JAN01	22FEB01	32	Tank SX-105 Pil Jmp/Mod Cover Bks Planning
23N62B	1	23FEB01	23FEB01	32	Tank SX-105 Pil Jmp/Mod Cover Bks Stage 2up
23N62C	3	26FEB01	28FEB01	32	Tank SX-105 Pil Jmp/Mod Cover Bks Field Work
23N62D	1	01MAR01	01MAR01	32	Tank SX-105 Pil Jmp/Mod Cover Bks
23N62E	2	02MAR01	05MAR01	32	Tank SX-105 Pil Jmp/Mod Cover Bks Restoration
23N64A	10	21FEB01	08MAR01	31	Tank SX-105 Planning
23N64B	1	07MAR01	07MAR01	31	Tank SX-105 Stage/Prep Equipment
23N64C	4	08MAR01	13MAR01	31	Tank SX-105 Perf Lanco/Install Screen
23N64D	1	14MAR01	14MAR01	31	Tank SX-105 Restoration
23N72A	20	12FEB01*	12MAR01	31	Tank SX-105 Write Xtr Procedure for SW Pumping
23N72B	2	19MAR01	20MAR01	29	Tank SX-105 Perform Mgt Assessment Pre-Start
23N72C	2	21MAR01	23MAR01	29	Tank SX-105 Perform Preop's for SW Pumping
1.01.02.01.04.46.05.02 Pump Tank SX-105					
23N72D1	729	01MAY01*	29APR03	0	Pump Tank SX-105
23N72D2	501	01MAY01	29APR03	358	Tank SX-105 Perf Weekly Flush during SW Pumping
1.01.02.01.04.46.05.03 SWP System Maint & Operability Tank SX-105					
23N65A	483	01MAY01	17APR03	358	Tank SX-105 (Annual) CM
23N65B	501	01MAY01	29APR03	358	Tank SX-105 (Annual) Pil Skud Mounted Equipment

Activity ID	Only Per	Early Start	Early Finish	Total Float
1.01.02.01.04.46.06.04 Isolation & Intrusion Prevention Tank SX-105				
23M78A1	8	24OCT03	30OCT03	0
23M78A2	1	31OCT03	31OCT03	35
23M78B1	60	31OCT03	29DEC03	0
23M78B2	2	24DEC03	26DEC03	0
23M78B3	10	30DEC03	13JAN04	0
23M80A	30	19SEP03	30OCT03	48
23M80B	70	05NOV03	14NOV03	37
23M80C	10	14JAN04	27JAN04	0
23M80D	10	28JAN04	10FEB04	0
23M80E	20	11FEB04	10MAR04	0
23M80S	0		10MAR04	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

23P10C	8	01JUN98	08JUN98	0
23P10B	25	01JUN98	07JUL98	38
23P10D	25	08JUN98	14JUL98	58
23P10E	28	08JUN98	14JUL98	43
23P10F	35	08JUN98	28JUL98	73
23P10G	35	08JUN98	28JUL98	21
23P10H	25	08JUN98	14JUL98	59
23P10L	30	08JUN98	21JUL98	15
23P10S	35	08JUN98	28JUL98	11
23P10U	35	08JUN98	28JUL98	8

Tank SX-105 Prepare W/P for In-Tank Video

Tank SX-105 Perform In-Tank Video

Tank SX-106 Evaluate SW Pumping Data

Tank SX-105 Evaluate In-Tank Video Data

Tank SX-105 Prep Justif/Letter/Declara Complete

Tank SX-106 Fit Isolation Design

Tank SX-105 Isolation Planning

Tank SX-105 Isolation Stage Equipment

Tank SX-105 Isolation Work

Tank SX-105 Isolation Complete Documentation

Tank SX-105 Tank Sterilization/Isolation Compl

Tank SX-106 Per Tank Walkdown

Tank SX-106 Inst Den - Upgr Pump/Insta Conf Sld

Tank SX-106 Prep/Appro ECH Contn Block Modf

Tank SX-106 Prep Den Media to Install FG Monitor

Tank SX-106 Prep/Appro ECH Upgrade Leak Detect

Tank SX-106 Inst Den - Inst Deten Sys

Tank SX-106 Inst Den - SWP Screen

Tank SX-106 Inst Den - Install Pump Jumper

Tank SX-106 Inst Den - Infr Heat Trace

Tank SX-106 Inst Den - Infrascrc (Elect)

Activity ID	Orig Desc	Early Start	Early Finish	Total Float		FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23P15A		30	22JUL98	01SEP98	15															
23P16C		15	29JUL98	18AUG98	21															
23P20A		15	02SEP98	23SEP98	15															
23P20B		10	02SEP98	18SEP98	15															
23P20C		3	17SEP98	21SEP98	15															
23P25D		27	04JUN98	09JUL98	0															
23P28E		22	10JUL98	10AUG98	0															
23P29F		1	11AUG98	11AUG98	0															
23P30A		10	29JUN98	14JUL98	43															
23P30B		5	02SEP98	06SEP98	6															
23P30C		2	16SEP98	18SEP98	8															
23P30D		3	10SEP98	14SEP98	9															
23P42A		10	18AUG98	01SEP98	21															
23P42B		6	02SEP98	10SEP98	21															
23P42D		1	11SEP98	11SEP98	21															
23P46B		20	19AUG98	02SEP98	13															
23P50A		10	15JUL98	28JUL98	49															
23P50B		1	28JUL98	29JUL98	48															
23P50C		2	30JUL98	31JUL98	49															
23P50D		1	03AUG98	03AUG98	48															
23P52A		30	28JUL98	06SEP98	14															
23P52C		30	29JUL98	06SEP98	13															
23P52D		30	29JUL98	06SEP98	14															

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23P52E	30	25JUL98	06SEP98	8	Tank SX-106 Upgrade Initial Instrument Upgrade
23P54A1	3	12AUG98	14AUG98	0	Tank SX-106 Review/Verify Profile Sht Complete
23P54A2	5	17AUG98	21AUG98	26	Tank SX-106 Calc Inputs for Time 26% LFL Detern
23P54A3	2	24AUG98	25AUG98	26	Tank SX-106 Calc Inputs for Time 25% LFL Detern
23P54A4	2	24AUG98	26AUG98	26	Tank SX-106 Detern OCRT Time to 26% LFL Detern
23P54A5	8	24SEP98	01OCT98	0	Tank SX-106 Compt Competibility Compliance Table
23P54A6	3	02OCT98	06OCT98	0	Tank SX-106 Write/Review Issue White Paper
23P54A7	5	07OCT98	13OCT98	0	Tank SX-106 Perform Assessment/RW/Approve Flg
23P54A8	5	14OCT98	20OCT98	0	Tank SX-106 Management review & approval
23P54B1	2	12AUG98	13AUG98	0	Tank SX-106 Review ANQVA Results
23P54B2	5	14AUG98	20AUG98	0	Tank SX-106 Gather Process Data (EVA/FLOW Rate)
23P54B3	5	21AUG98	27AUG98	0	Tank SX-106 Perform Calculations
23P54B4	3	28AUG98	01SEP98	0	Tank SX-106 Prepare Appendix to SD
23P54B5	15	02SEP98	23SEP98	0	Tank SX-106 Write Supporting Document
23P59A	10	15JUN98	26JUN98	51	Tank SX-106 Plan OTP
23P59B	10	15JUN98	26JUN98	51	Tank SX-106 Engineering Plan OTP Software Sys
23P59D	12	01AUG98	16SEP98	8	Tank SX-106 Perform OTP
23P59E	10	17SEP98	30SEP98	8	Tank SX-106 OTP Closeout
23P80A	10	01JUN98	12JUN98	70	Tank SX-106 Hydro - Planning (1 X17 Line)
23P80B	1	15JUN98	15JUN98	70	Tank SX-106 Hydro - Stage Equipment
23P80C	4	18JUN98	19JUN98	70	Tank SX-106 Hydro - Set Up
23P80D	3	22JUN98	24JUN98	70	Tank SX-106 Hydro - Perform Hydro Test
23P80E	6	26JUN98	01JUL98	70	Tank SX-106 Hydro - Reconfig Pits/Resione

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23P82A		20 15JUN98	14JUL98	58	Tank SX-106 Pri JmpnMod Cover Blls Planning
23P82B		1 15JUL98	15JUL98	58	Tank SX-106 Pri JmpnMod Cover Blls Stage Eqp
23P82C		3 16JUL98	20JUL98	56	Tank SX-106 Pri JmpnMod Cover Blls Field Work
23P82D		1 21JUL98	21JUL98	65	Tank SX-106 Pri JmpnMod Cover Blls
23P82E		2 22JUL98	23JUL98	58	Tank SX-106 Pri JmpnMod Cover Blls Restoration
23P84A		10 17SEP98	30SEP98	8	Tank SX-106 Planning
23P84B		1 01OCT98	01OCT98	8	Tank SX-106 Stage/Prep Equipment
23P84C		4 02OCT98	07OCT98	8	Tank SX-106 Perf Lance/Install Screen
23P84D		1 08OCT98	08OCT98	2	Tank SX-106 Restoration
23P72A		20 20JUL98	14AUG98	44	Tank SX-106 Write Xls Procedure for SW Pumping
23P72B		2 19OCT98	20OCT98	0	Tank SX-106 Perform Mgt Assessment Pre-Start
23P72C		2 21OCT98	22OCT98	0	Tank SX-106 Perform Prereq's for SW Pumping
1.01.02.01.04.46.05.02 Pump Tank SX-106					
23P72D1		566 23OCT98	30MAY00	0	Pump Tank SX-106
23P72D2		568 23OCT98	24MAY00	1,090	Tank SX-106 Perf Weekly Flush during SW Pumping
1.01.02.01.04.46.09.03 SWP System Maint & Operability Tank SX-106					
23P88A		398 23OCT98	24MAY00	1,090	Tank SX-106 (Annual) CM
23P88D		384 23OCT98	04MAY00	1,104	SX-106 Software System Pths (Annual)
1.01.02.01.04.46.09.04 Isolation & Intrusion Prevention Tank SX-106					
23P78A1		5 24OCT98	30OCT98	0	Tank SX-106 Prepare W/P for In-Tank Video
23P78A2		1 31OCT98	31OCT98	35	Tank SX-106 Perform In-Tank Video
23P78B1		60 31OCT98	29DEC98	0	Tank SX-106 Evaluate SW Pumping Data
23P78B2		2 24DEC98	28DEC98	0	Tank SX-106 Evaluate In-Tank Video Data
23P78B3		10 30DEC98	13JAN99	0	Tank SX-106 Prep Jmpn Mod Latching/Declass Complete

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
23P80A		30:15SEP03	30OCT03	48
23P80B		10:03NOV03	14NOV03	37
23P80C		10:14JAN04	27JAN04	0
23P80D		10:28JAN04	10FEB04	0
23P80E		20:11FEB04	10MAR04	0
23PMS		0:	10MAR04	0

1.01.02.01.04.48.40 241-SX Tank Farm Annual Hydro

1.01.02.01.04.45.40.01 241-SX Tank Farm Annual Hydro

23M74A		15:01MAR99	18MAR99	530
23M74B		4:01MAR99	04MAR99	541
23M74C		5:22MAR99	26MAR99	590
23M74D		5:22MAR99	02APR99	590
23M74E		5:06APR99	06APR99	590
23M74F		15:11APR00	01MAY00	590
23M74G		4:11APR00	14APR00	541
23M74H		5:02MAY00	08MAY00	590
23M74J		5:09MAY00	19MAY00	630
23M74K		5:16MAY00	22MAY00	590
23M74M		15:23MAY01	13JUN01	630
23M74N		4:23MAY01	26MAY01	541
23M74P		5:14JUN01	26JUN01	590
23M74Q		5:21JUN01	27JUN01	630
23M74R		5:28JUN01	06JUL01	580
23M74S		15:06JUL02	28JUL02	590

SX08FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13

Tank SX-105 Pil Isolation Design

Tank SX-106 Isolation Planning

Tank SX-108 Isolation Stage Equipment

Tank SX-108 Isolation Work

Tank SX-108 Isolation Complete Documentation

Tank SX-106 Tank Stabilization/Isolation Comp

Farm SX Annual Hydro - Planning (FY99)

Farm SX Annual Hydro - Stage Equipment (FY99)

Farm SX Annual Hydro - Set Up (FY99)

Farm SX Annual Hydro - Perform Hydro Test (FY99)

Farm SX Annual Hydro - Reconf Pits/Restore (FY99)

Farm SX Annual Hydro - Planning (FY00)

Farm SX Annual Hydro - Stage Equipment (FY00)

Farm SX Annual Hydro - Set Up (FY00)

Farm SX Annual Hydro - Perform Hydro Test (FY00)

Farm SX Annual Hydro - Reconf Pits/Restore (FY00)

Farm SX Annual Hydro - Planning (FY01)

Farm SX Annual Hydro - Stage Equipment (FY01)

Farm SX Annual Hydro - Set Up (FY01)

Farm SX Annual Hydro - Perform Hydro Test (FY01)

Farm SX Annual Hydro - Reconf Pits/Restore (FY01)

Farm SX Annual Hydro - Planning (FY02)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23M74T	4	09JUL02	12JUL02	541	
23M74U	6	30JUL02	06AUG02	530	
23M74V	5	06AUG02	12AUG02	530	
23M74W	6	13AUG02	19AUG02	530	
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					
23089K1	20	14JUL03	22AUG03	236	Tank T-101 Pre Isolation Design
23089K2	10	28JUL03	06AUG03	248	Tank T-101 Isolation Planning
23089K3	10	25AUG03	06SEP03	236	Tank T-101 Isolation Stage Equipment
23089K4	10	09SEP03	22SEP03	236	Tank T-101 Isolation Work
23089K5	20	23SEP03	26OCT03	236	Tank T-101 Isolation Complete Documentation
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	183	01JUN98	30NOV98	0	Pump Tank T-104
23Q72D2	127	01JUN98	01DEC98	1,462	Tank T-104 Perf Weekly Flush during SW Pumping
1.01.02.01.04.47.04.03 SWP System Maint & Operability Tank T-104					
23Q88A	127	01JUN98	01DEC98	1,462	Tank T-104 (Annual) CM
23Q88B	127	01JUN98	01DEC98	1,462	Tank T-104 Solvent System Phis (Annual)
1.01.02.01.04.47.04.04 Isolation & Intrusion Prevention Tank T-104					
23Q78A1	5	24OCT03	30OCT03	0	Tank T-104 Prepare SWP for In-Tank Video
23Q78A2	1	31OCT03	31OCT03	35	Tank T-104 Perform In-Tank Video
23Q78B1	60	31OCT03	29DEC03	0	Tank T-104 Evaluate SWP Pumping Data
23Q78B2	2	29DEC03	29DEC03	0	Tank T-104 Evaluate In-Tank Video Data
23Q78B3	10	30DEC03	13JAN04	0	Tank T-104 Prep Just In-Labor/Declare Complete
23Q80A	30	18SEP03	30OCT03	48	Tank T-104 Pre Isolation Design

Activity ID	Orig Der	Early Start	Early Finish	Total Float	
23Q808	10	03NOV03	14NOV03	37	
23Q890	10	14JAN04	27JAN04	0	
23Q895	10	25JAN04	10FEB04	0	
23Q89E	20	11FEB04	10MAR04	0	
23Q89S	0		10MAR04	0	
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					
23R7251	155	01JUN98	31OCT98	0	Pump Tank T-110
23R7202	105	01JUN98	28OCT98	1,484	Tank T-110 Per Weekly Flush during SW Pumping
1.01.02.01.04.47.10.03 SWP System Maint & Operability Tank T-110					
23R68A	105	01JUN98	28OCT98	1,484	Tank T-110 (Annual) CM
23R68D	105	01JUN98	28OCT98	1,484	Tank T-110 (Annual) P&H Saltwell Systems
1.01.02.01.04.47.10.04 Isolation & Intrusion Prevention Tank T-110					
23R78A1	5	24OCT03	30OCT03	0	Tank T-110 Prepare WP for In-Tank Video
23R78A2	1	31OCT03	31OCT03	36	Tank T-110 Perform In-Tank Video
23R78B1	60	31OCT03	29DEC03	0	Tank T-110 Evaluate SW Pumping Data
23R78B2	2	24DEC03	29DEC03	0	Tank T-110 Evaluate In-Tank Video Data
23R78B3	10	30DEC03	13JAN04	6	Tank T-110 Prep Justif Letter/Declare Complete
23R80A	30	19SEP03	30OCT03	48	Tank T-110 P&H Isolation Design
23R80B	10	03NOV03	14NOV03	37	Tank T-110 Isolation Planning
23R80C	10	14JAN04	27JAN04	0	Tank T-110 Isolation Stage Equipment
23R80D	10	25JAN04	10FEB04	0	Tank T-110 Isolation Work
23R80E	20	11FEB04	10MAR04	0	Tank T-110 Isolation Complete Documentation
23R80S	0		10MAR04	0	Tank T-110 Tank Stabilization/Isolation Compl
1.01.02.01.04.47.11 Stabilize and Isolate Tank T-111					

Activity ID	Orig Dsr	Early Start	Early Finish	Total Float
1.01.02.01.04.47.11.01	Prepare Tank T-111 for Pumping			
1.01.02.01.04.47.11.02	Pump Tank T-111			
1.01.02.01.04.47.11.04	Isolation & Infiltration Prevention Tank T-111			
2308SM1	30	14JUL03	22AUG03	238
2308SM2	10	28JUL03	06AUG03	246
2308SM3	10	25AUG03	08SEP03	335
2308SM4	10	08SEP03	22SEP03	236
2308SM5	20	23SEP03	20OCT03	236

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

0347A	125	01JUN98	30NOV98	0
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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

23809C	5	30MAY02	06JUN02	22
23810C	30	30MAY02	12JUL02	48
23810B	25	06JUN02	12JUL02	82
23810E	25	06JUN02	12JUL02	69
23810K	25	06JUN02	12JUL02	85
23810L	30	06JUN02	18JUL02	31
23810M	25	06JUN02	12JUL02	22
23810B	40	22JUL02	18SEP02	31
23815D	40	15JUL02	09SEP02	22
23820A	15	17SEP02	07OCT02	31
23820B	10	17SEP02	30SEP02	31
23830C	3	01OCT02	03OCT02	31

1.01.02.01.04.47.11.01	Prepare Tank T-111 for Pumping			
1.01.02.01.04.47.11.02	Pump Tank T-111			
1.01.02.01.04.47.11.04	Isolation & Infiltration Prevention Tank T-111			
2308SM1	30	14JUL03	22AUG03	238
2308SM2	10	28JUL03	06AUG03	246
2308SM3	10	25AUG03	08SEP03	335
2308SM4	10	08SEP03	22SEP03	236
2308SM5	20	23SEP03	20OCT03	236

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			
0347A	125	01JUN98	30NOV98	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			
23809C	5	30MAY02	06JUN02	22
23810C	30	30MAY02	12JUL02	48
23810B	25	06JUN02	12JUL02	82
23810E	25	06JUN02	12JUL02	69
23810K	25	06JUN02	12JUL02	85
23810L	30	06JUN02	18JUL02	31
23810M	25	06JUN02	12JUL02	22
23810B	40	22JUL02	18SEP02	31
23815D	40	15JUL02	09SEP02	22
23820A	15	17SEP02	07OCT02	31
23820B	10	17SEP02	30SEP02	31
23830C	3	01OCT02	03OCT02	31

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23530A	10	27JUN02	12JUL02	69	Tank U-102 FGM Planning
23530B	8	15JUL02	18JUL02	69	Tank U-102 FGM Install
23530C	2	25JUL02	28JUL02	69	Tank U-102 FGM Perform Calibration
23530D	3	22JUL02	24JUL02	69	Tank U-102 FGM Perform OTP
23545C	30	15JUL02	23AUG02	49	Tank U-102 Upgrade/WFE Cabinet
23550A	10	27JUN02	12JUL02	85	Tank U-102 Saltwell Screen Planning
23550B	1	15JUL02	15JUL02	85	Tank U-102 Saltwell Screen - Stage & Prep
23550C	2	16JUL02	17JUL02	85	Tank U-102 Saltwell Screen - Install
23550D	1	16JUL02	16JUL02	85	Tank U-102 Saltwell Screen - Restoration
23554A1	3	06AUG02	08AUG02	30	Tank U-102 Barrier/Vent Profile Shl Complete
23554A2	5	09AUG02	15AUG02	56	Tank U-102 Calc Inputs for Time 25% LFL Determin
23554A3	2	16AUG02	18AUG02	58	Tank U-102 Calc Inputs for Time 26% LFL Determin
23554A4	2	16AUG02	18AUG02	58	Tank U-102 Determin DCRT Time to 25% LFL Determin
23554A5	6	18SEP02	26SEP02	30	Tank U-102 Compl Competability Compliance Table
23554A6	3	30SEP02	30SEP02	30	Tank U-102 Write/Review Issue White Paper
23554A7	5	01OCT02	07OCT02	30	Tank U-102 Perform Assessment/Review/Approve Pkg
23554A8	5	08OCT02	14OCT02	30	Tank U-102 Management review & approval
23554B1	2	08AUG02	07AUG02	30	Tank U-102 Review ANOVA Results
23554B2	5	08AUG02	14AUG02	30	Tank U-102 Gather Process Data (EVAP/FLOW Rate)
23554B3	5	15AUG02	21AUG02	30	Tank U-102 Perform Calculations
23554B4	3	22AUG02	26AUG02	30	Tank U-102 Prepare Appendix to SO
23554B8	15	27AUG02	17SEP02	30	Tank U-102 Write Supporting Document
23555A	10	30MAY02	12JUN02	87	Tank U-102 Plan OTP

Activity ID	Orig Dir	Early Start	Early Finish	Total Float	
23S558	10	30MAY02	12JUN02	87	Tank U-102 Engineering Plan OTP Sulfate Sys
23S560	12	06AUG02	23AUG02	49	Tank U-102 Perform OTP
23S562	10	20SEP02	03OCT02	31	Tank U-102 OTP Closeout
23S60A	10	30MAY02	12JUN02	100	Tank U-102 Hydro - Planning (1 Xtr Line) (3)
23S60B	1	13JUN02	13JUN02	100	Tank U-102 Hydro - Sludge Equipment (3)
23S60D	3	14JUN02	18JUN02	100	Tank U-102 Hydro - Perform Hydro Test (3)
23S60E	5	19JUN02	25JUN02	100	Tank U-102 Hydro - Reconfig Pits/Restore (3)
23S62A	20	20SEP02	07OCT02	22	Tank U-102 Pit Impacted Cover Bldg Planning
23S62B	1	06OCT02	06OCT02	22	Tank U-102 Pit Impacted Cover Bldg Sludge Equip
23S62C	3	06OCT02	11OCT02	22	Tank U-102 Pit Impacted Cover Bldg Field Work
23S62D	1	14OCT02	14OCT02	22	Tank U-102 Pit Impacted Cover Bldg
23S62E	2	16OCT02	16OCT02	22	Tank U-102 Pit Impacted Cover Bldg Restoration
23S64A	10	09OCT02	16OCT02	22	Tank U-102 Planning
23S64B	1	17OCT02	17OCT02	22	Tank U-102 Sludge/Prep Equipment
23S64C	4	18OCT02	23OCT02	22	Tank U-102 Perf Lances/Inlet Screens
23S64D	1	24OCT02	24OCT02	22	Tank U-102 Restoration
23S72A	20	23SEP02	18OCT02	23	Tank U-102 Write Xtr Procedure for SW Pumping
23S72B	2	23OCT02	24OCT02	23	Tank U-102 Perform Mgt Assessment Per Start
23S72C	2	25OCT02	28OCT02	22	Tank U-102 Perform Prereq's for SW Pumping
1.01.02.01.04.48.02.02 Pump Tank U-102					
23S72D1	354	01DEC02	30OCT03	0	Pump Tank U-102
23S72D2	228	02DEC02	27OCT03	234	Tank U-102 Perf Weekly Flush during SW Pumping
1.01.02.01.04.48.02.03 SWP System Maint & Operability Tank U-102					
23S65A	228	02DEC02	27OCT03	234	Tank U-102 (Annual) Chl

Activity ID	Orig Dur	Early Start	Early Finish	Total Float
23S66B	228	02DEC02	27OCT03	231
1.01.02.01.04.48.02.04 Isolation & Intrusion Prevention Tank U-102				
23S78A1	5	24OCT03	30OCT03	28
23S78A2	7	31OCT03	31OCT03	84
23S78B1	80	10DEC03	07FEB04	2
23S78B2	2	08FEB04	08FEB04	0
23S78B3	10	10FEB04	24FEB04	0
23S80A	30	19SEP03	30OCT03	77
23S80B	10	03NOV03	14NOV03	66
23S80C	10	23FEB04	06MAR04	0
23S80D	10	10MAR04	23MAR04	0
23S80E	20	23MAR04	20APR04	0
23S80F	0		20APR04	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				
23T05A	1	18SEP01	18SEP01	83
23T05B	10	19SEP01	02OCT01	45
23T05C	5	19SEP01	25SEP01	90
23T05D	30	19SEP01	30OCT01	117
23T05E	25	03OCT01	06NOV01	145
23T05F	25	03OCT01	06NOV01	132
23T05G	35	28SEP01	13NOV01	95
23T05H	25	03OCT01	06NOV01	148
23T05I	30	03OCT01	13NOV01	84

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23T10M	25	03OCT01	06NOV01	85	U-103 FGM Plan/Modify Pump
23T10U	35	25SEP01	13NOV01	95	U-103 Inlet Den - Inlet Vtr P4 Jump (2)
23T10B	40	14NOV01	18JAN02	94	U-103 Inlet Den - Inlet Vtr (Eqd)
23T15D	40	07NOV01	06JAN02	85	U-103 New Pump Jumper (1 eq)
23T18A	30	02APR01*	11MAY01	232	U-103 Feb P4 Valve Jumpers (2)
23T18B	20	02APR01*	27APR01	242	U-103 - Work Planning
23T18C	18	14MAY01	07JUN01	232	U-103 - Stage Parts
23T18D	18	08JUN01	03JUL01	232	U-103 - Perform Mode
23T20A	15	17JAN02	06FEB02	94	U-103 Restoration
23T20B	10	17JAN02	30JAN02	94	U-103 Plan/Modify Pump
23T20C	3	31JAN02	04FEB02	94	U-103 Plan Run-In
23T30A	10	14DEC01	03JAN02	97	U-103 Pump Run-In
23T30B	5	03JAN02	09JAN02	97	U-103 FGM Planning
23T30C	2	15JAN02	18JAN02	97	U-103 FGM Install
23T30D	3	18JAN02	14JAN02	97	U-103 FGM Perform Calibration
23T40A	10	14DEC01	03JAN02	111	U-103 FGM Perform OTP
23T40B	5	21DEC01	02JAN02	111	U-103 Exhauster Planning
23T40C	8	11JAN02	18JAN02	111	U-103 Stage Materials
23T45C	30	14NOV01	02JAN02	107	U-103 (OTP) Exhauster
23T50A	10	24OCT01	08NOV01	148	U-103 Upgrade/WPE Cabinet
23T50B	1	07NOV01	07NOV01	148	U-103 Saltwell Screen Planning
23T50C	2	08NOV01	09NOV01	148	U-103 Saltwell Screen - Stage & Prep
23T50D	1	12NOV01	12NOV01	148	U-103 Saltwell Screen - Install
					U-103 Saltwell Screen - Restoration

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
23T52A	30	14NOV01	02JAN02	97												
23T52B	30	14NOV01	02JAN02	87												
23T52C	30	14NOV01	02JAN02	95												
23T52D	30	14NOV01	02JAN02	87												
23T52E	30	14NOV01	02JAN02	97												
23T54A1	3	01MAR02	05MAR02	34												
23T54A2	8	06MAR02	12MAR02	60												
23T54A3	2	13MAR02	14MAR02	60												
23T54A4	2	13MAR02	14MAR02	60												
23T54A5	6	12APR02	19APR02	34												
23T54A6	3	22APR02	24APR02	34												
23T54A7	5	25APR02	01MAY02	34												
23T54A8	8	02MAY02	08MAY02	34												
23T54B1	2	01MAR02	04MAR02	34												
23T54B2	5	06MAR02	11MAR02	34												
23T54B3	5	12MAR02	18MAR02	34												
23T54B4	3	18MAR02	21MAR02	34												
23T54B5	15	22MAR02	11APR02	34												
23T55A	10	14DEC01	02JAN02	88												
23T55B	10	14DEC01	02JAN02	85												
23T55D	12	03JAN02	15JAN02	95												
23T55E	10	22JAN02	04FEB02	84												
23T55A	10	19SEP01	02OCT01	164												

Tank U-103 Upgr Int - Electrical
Tank U-103 Upgr Int - Vibration
Tank U-103 Upgr Int - Leak Detectors
Tank U-103 Upgr Int - Heat Traces
Tank U-103 Upgr Int - Instrument Upgrades
Tank U-103 Review/Verify Profile SH Complete
Tank U-103 Calc Inputs for Time 25% LFL Determin
Tank U-103 Calc Inputs for Time 25% LFL Determin
Tank U-103 Determine DCAT Time to 25% LFL Determin
Tank U-103 Compl Compensability Compliance Table
Tank U-103 Write/Review Issue Write Paper
Tank U-103 Perform Assessment/Review/Approve Pkg
Tank U-103 Management review & approval
Tank U-103 Review ANOVA Results
Tank U-103 Gather Process Data (EVAP/FLOW Rate)
Tank U-103 Perform Calculations
Tank U-103 Prepare Appendix to SD
Tank U-103 Write Supporting Document
Tank U-103 Plan OTP
Tank U-103 Engineering Plan OTP Software Sys
Tank U-103 Perform OTP
Tank U-103 OTP Closeout
Tank U-103 Hydro - Planning (1 Yr Line) (3)

Activity ID	Orig. Desc.	Early Start	Early Finish	Total Float	
23T608		1 03OCT01	03OCT01	164	Tank U-103 Hydro - Stage Equipment (3)
23T60C		4 04OCT01	04OCT01	164	Tank U-103 Hydro - Set Up (3)
23T60D		5 10OCT01	12OCT01	164	Tank U-103 Hydro - Perform Hydro Test (3)
23T60E		5 10OCT01	19OCT01	164	Tank U-103 Hydro - Reconfig P&ID/Realign (3)
23T62A		20 10JAN02	08FEB02	85	Tank U-103 P&ID Jmpa/Mod Cover Bldg Planning (2)
23T62B		1 07FEB02	07FEB02	85	Tank U-103 P&ID Jmpa/Mod Cover Bldg Stage Equip (2)
23T62C		3 08FEB02	12FEB02	85	Tank U-103 P&ID Jmpa/Mod Cover Bldg Field Work (2)
23T62D		7 13FEB02	13FEB02	85	Tank U-103 P&ID Jmpa/Mod Cover Bldg (2)
23T62E		2 14FEB02	16FEB02	86	Tank U-103 P&ID Jmpa/Mod Cover Bldg Restore (2)
23T64A		10 07MAR02	20MAR02	63	Tank U-103 Planning
23T64B		1 21MAR02	21MAR02	63	Tank U-103 Stage/Prep Equipment
23T64C		4 22MAR02	27MAR02	63	Tank U-103 Perf Lance/Install Screen
23T64D		1 28MAR02	28MAR02	63	Tank U-103 Restoration
23T72A		20 22APR02	17MAY02	25	Tank U-103 Write Xtr Procedure for SW Pumping
23T72B		2 20MAY02	21MAY02	25	Tank U-103 Perform Ngt Assessment Pre-Start
23T72C		2 22MAY02	23MAY02	25	Tank U-103 Perform Pre-align for SW Pumping
1.01.02.01.04.48.03.02 Pump Tank U-103					
23T72D1		487 30JUN02	25OCT03	6	Pump Tank U-103
23T72D2		334 01JUL02	23OCT03	233	Tank U-103 Perf Weekly Flush during SW Pumping
1.01.02.01.04.48.03.03 SWP System Maint & Operability Tank U-103					
23T68A		331 01JUL02	23OCT03	233	Tank U-103 (Annual) CM
23T68B		331 01JUL02	23OCT03	233	Tank U-103 (Annual) P&ID
1.01.02.01.04.48.03.04 Isolation & Intrusion Prevention Tank U-103					
23T78A1		5 24OCT03	30OCT03	0	Tank U-103 Prepare WP for In-Tank Video

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23T78A2	1	31OCT03	31OCT03	35	Tank U-103 Perform In-Tank Video
23T78B1	60	31OCT03	29DEC03	0	Tank U-103 Evaluate SW Pumping Data
23T78B2	2	24DEC03	24DEC03	0	Tank U-103 Evaluate In-Tank Video Data
23T78B3	10	30DEC03	13JAN04	0	Tank U-103 Prep Justif Letter/Declare Complete
23T80A	30	19SEP03	30OCT03	48	Tank U-103 Fit Isolation Design
23T80B	10	03NOV03	14NOV03	37	Tank U-103 Isolation Planning
23T80C	10	14JAN04	27JAN04	0	Tank U-103 Isolation Stage Equipment
23T80D	10	26JAN04	10FEB04	0	Tank U-103 Isolation Work
23T80E	20	11FEB04	10MAR04	0	Tank U-103 Isolation Complete Documentation
23T85	0		10MAR04	0	Tank U-103 Tank Stabilization/Isolation Compl
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	5	01AUG02	07AUG02	23	Tank U-105 Per Tank Walkdown
23U10C	30	01AUG02	12SEP02	50	U-105 Instl Dsn - Upgr WPIE
23U10D	25	08AUG02	12SEP02	83	Tank U-105 Prep/Appro ECN Cover Block Modif
23U10E	35	08AUG02	12SEP02	70	Tank U-105 Prep Den Media to Install FG Monitor
23U10K	25	08AUG02	12SEP02	58	Tank U-105 Instl Dsn - SWP Screen
23U10L	30	08AUG02	18SEP02	32	Tank U-105 Instl Dsn - Install Pump Jumper
23U10M	25	08AUG02	12SEP02	23	Tank U-105 Instl Dsn - Instl Vlv Fit Jump (5)
23U15B	40	20SEP02	14NOV02	32	U-105 New Pump Jumper (1 ss)
23U15D	40	13SEP02	07NOV02	29	Tank U-105 Fab PA Valve Jumpers (1)
23U20A	15	15NOV02	06DEC02	32	Tank U-105 Plan/Modify Pump
23U20B	10	16NOV02	02DEC02	32	Tank U-105 Pump Run-In
23U20C	3	03DEC02	05DEC02	32	Tank U-105 Pump Run-In

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23U30A	10	29AUG02	13SEP02	70													Tank U-106 FGM Planning
23U30B	5	19SEP02	19SEP02	70													Tank U-105 FGM Install
23U30C	2	23SEP02	26SEP02	70													Tank U-106 FGM Perform Calibration
23U30D	3	26SEP02	29SEP02	70													Tank U-105 FGM Perform OTP
23U45C	30	13SEP02	24OCT02	50													Tank U-105 Upgrade WFE Cabinet
23U60A	10	29AUG02	12SEP02	88													Tank U-105 Saltwell Screen Paving
23U60B	1	13SEP02	13SEP02	88													Tank U-106 Saltwell Screen - Slope & Prep
23U50C	2	16SEP02	17SEP02	88													Tank U-105 Saltwell Screen - Install
23U50D	1	18SEP02	18SEP02	88													Tank U-105 Saltwell Screen - Reconnection
23U64A1	3	08OCT02	10OCT02	38													Tank U-105 Review/Verify Profile Sht Complete
23U64A2	8	11OCT02	17OCT02	54													Tank U-105 Calc inputs for Time 25% LFL Detenn
23U64A3	2	18OCT02	21OCT02	54													Tank U-105 Calc inputs for Time 25% LFL Detenn
23U64A4	2	18OCT02	21OCT02	54													Tank U-105 Detenn OCRT Time to 25% LFL Detenn
23U64A5	8	18NOV02	26NOV02	28													Tank U-106 Compl Compatability Compliance Table
23U64A6	3	27NOV02	03DEC02	28													Tank U-105 Write/Review Issue Write Paper
23U64A7	5	04DEC02	10DEC02	28													Tank U-105 Perform Assessment/Review/Approve Pkg
23U64A8	8	11DEC02	17DEC02	28													Tank U-106 Management review & approval
23U64B1	2	08OCT02	09OCT02	28													Tank U-105 Review ANOVA Results
23U64B2	8	16OCT02	16OCT02	28													Tank U-105 Gather Process Data (EVA/PEL/OWN Rate)
23U64B3	5	17OCT02	23OCT02	28													Tank U-105 Perform Calculations
23U64B4	3	24OCT02	28OCT02	28													Tank U-105 Prepare Appendix to SD
23U64B5	15	29OCT02	18NOV02	28													Tank U-105 Write Supporting Document
23U68A	10	07AUG02	14AUG02	88													Tank U-106 Plan OTP

Activity ID		Orig Day	Early Start	Early Finish	Total Cost	FY98 FY99 FY00 FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13											
23U68B		10	01AUG02	14AUG02	68	Tank U-105 Engineering Plan OTP Submittal Sys											
23U68C		12	06OCT02	24OCT02	50	Tank U-105 Perform OTP											
23U68E		10	28NOV02	09DEC02	32	Tank U-105 OTP Closeout											
23U69A		10	01AUG02	14AUG02	87	Tank U-105 Hydro - Planning (1 Xtr Line) (4)											
23U69B		1	15AUG02	15AUG02	97	Tank U-105 Hydro - Stage Equipment (4)											
23U69C		4	16AUG02	21AUG02	97	Tank U-105 Hydro - Set Up (4)											
23U69D		3	22AUG02	26AUG02	97	Tank U-105 Hydro - Perform Hydro Test (4)											
23U69E		5	27AUG02	09SEP02	97	Tank U-105 Hydro - Reconfig Pits/Reserve (4)											
23U62A		20	08NOV02	08DEC02	29	Tank U-105 Pd JmpdMod Cover Bldg Planning											
23U62B		1	10DEC02	10DEC02	23	Tank U-105 Pd JmpdMod Cover Bldg Stage Egrt											
23U62C		3	11DEC02	13DEC02	23	Tank U-105 Pd JmpdMod Cover Bldg Field Work											
23U62D		1	16DEC02	16DEC02	23	Tank U-105 Pd JmpdMod Cover Bldg											
23U62E		2	17DEC02	18DEC02	23	Tank U-105 Pd JmpdMod Cover Bldg Restoration											
23U64A		10	09DEC02	18DEC02	29	Tank U-105 Planning											
23U64B		1	19DEC02	19DEC02	23	Tank U-105 Stage/Prep Equipment											
23U64C		4	20DEC02	27DEC02	23	Tank U-105 Perf Lance/Inlets/Screen											
23U64D		1	30DEC02	30DEC02	23	Tank U-105 Restoration											
23U72A		20	01AUG02	28AUG02	102	Tank U-105 Write Xtr Procedure for SW Pumping											
23U72B		2	16DEC02	17DEC02	28	Tank U-105 Perform Mgt Assessment Pre-Start											
23U72C		2	18DEC02	19DEC02	28	Tank U-105 Perform Prereq's for SW Pumping											
1.01.02.01.04.46.06.02 Pump Tank U-105																	
23U72D1		428	01FEB03	01APR04	9	Pump Tank U-105											
23U72D2		295	03FEB03	01APR04	124	Tank U-105 Perf Weekly Flush during SW Pumping											
1.01.02.01.04.46.06.03 SWP System Maint & Operability Tank U-105																	

Activity ID	Orig Cur	Early Start	Early Finish	Total Float	
23U88A	293	03FEB03	01APR04	124	Tank U-105 (Annual) CM
23U88D	293	03FEB03	01APR04	124	Tank U-105 Solenoid System PMs (Annual)
1.01.02.01.04.48.05.04 Isolation & Intrusion Prevention Tank U-105					
23U78A1	5	12MAY04	18MAY04	2	Tank U-105 Prepare WP for In-Tank Video
23U78A2	1	18MAY04	18MAY04	38	Tank U-105 Perform In-Tank Video
23U78B1	60	18MAY04	17JUL04	2	Tank U-105 Evaluate SW Pumping Data
23U78B2	2	18JUL04	19JUL04	0	Tank U-105 Evaluate In-Tank Video Data
23U78B3	10	20JUL04	02AUG04	0	Tank U-105 Prep Justif Letter/Declare Complete
23U80A	50	03FEB04	01APR04	84	Tank U-105 Pn Isolation Design
23U80B	10	20MAY04	03JUN04	40	Tank U-105 Isolation Planning
23U80C	10	03AUG04	18AUG04	0	Tank U-105 Isolation Stage Equipment
23U80D	10	17AUG04	30AUG04	0	Tank U-105 Isolation Work
23U80E	20	31AUG04	28SEP04	0	Tank U-105 Isolation Complete Documentation
23U80S	0		28SEP04	0	Tank U-105 Tank Stabilization/Isolation Complete
1.01.02.01.04.48.06 Stabilize and Isolate Tank U-105					
1.01.02.01.04.48.08.01 Prepare Tank U-105 for Pumping					
23V10C	5	09MAY03	09MAY03	23	Tank U-105 Per Tank Walkdown
23V10E	30	09MAY03	18JUN03	80	Tank U-105 Insl Den - Upgr WFE
23V10D	25	12MAY03	16JUN03	83	Tank U-105 Prep/Appro ECN Cover Block Modif
23V10E	28	12MAY03	18JUN03	70	Tank U-105 Prep Den Needs to Insl FG Monitor (2)
23V10K	25	12MAY03	16JUN03	86	Tank U-105 Insl Den - SWP Screen
23V10L	30	12MAY03	23JUN03	32	Tank U-105 Insl Den - Install Pump Jumper
23V10M	25	12MAY03	16JUN03	23	Tank U-105 Insl Den - Insl Vlv Pn Jump (8)
23V15B	40	24JUN03	20AUG03	32	Tank U-105 New Pump Jumper (1 ea)

Activity ID	Orig. Dur.	Early Start	Early Finish	Total Float	
23V15D	40	17JUN03	13AUG03	23	Tank U-106 Fan Pul Value Jumpers (6)
23V20A	18	21AUG03	11SEP03	32	Tank U-106 Plan/Modify Pump
23V20B	10	21AUG03	04SEP03	32	Tank U-106 Plan Run-In
23V20C	3	05SEP03	08SEP03	32	Tank U-106 Pump Run-In
23V30A	10	03JUN03	16JUN03	70	Tank U-106 FGM Planning (2)
23V30B	8	17JUN03	23JUN03	70	Tank U-106 FGM Install (2)
23V30C	2	27JUN03	30JUN03	70	Tank U-106 FGM Perform Calibration (2)
23V30D	8	24JUN03	28JUN03	70	Tank U-106 FGM Perform OTP (2)
23V45C	30	17JUN03	30JUL03	50	Tank U-106 Upgrade/MFIE Cabinet
23V50A	10	03JUN03	16JUN03	86	Tank U-106 Saltwell Screen Planning
23V50B	1	17JUN03	17JUN03	86	Tank U-106 Saltwell Screen - Stage 3 Prep
23V50C	2	18JUN03	18JUN03	86	Tank U-106 Saltwell Screen - Initial
23V50D	1	20JUN03	20JUN03	86	Tank U-106 Saltwell Screen - Restoration
23V54A1	3	14JUL03	16JUL03	28	Tank U-106 Review/Verify Profile Shx Complete
23V54A2	5	17JUL03	23JUL03	64	Tank U-106 Calc Inputs for Time 25% LFL Determin
23V54A3	2	24JUL03	26JUL03	54	Tank U-106 Calc Inputs for Time 25% LFL Determin
23V54A4	2	24JUL03	25JUL03	54	Tank U-106 Determine DCRT Time to 25% LFL Determin
23V54A5	8	25AUG03	02SEP03	28	Tank U-106 Compl Compatibility Compliance Table
23V54A8	3	03SEP03	05SEP03	28	Tank U-106 Write/Review Issue Write Paper
23V54A7	3	08SEP03	12SEP03	28	Tank U-106 Perform Assessment/Review/Approve Plug
23V54A8	5	15SEP03	18SEP03	28	Tank U-106 Management review & approval
23V64B1	2	14JUL03	15JUL03	26	Tank U-106 Review ANOVA Results
23V64B2	5	16JUL03	22JUL03	28	Tank U-106 Gather Process Data (EVAPFLOW Rate)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23V54B3	5	23JUL03	29JUL03	28	Tank U-106 Perform Calculations
23V54B4	3	30JUL03	01AUG03	28	Tank U-106 Prepare Appendix to SD
23V54B5	15	04AUG03	22AUG03	28	Tank U-106 Write Supporting Document
23V56A	10	05MAY03	16MAY03	88	Tank U-106 Plan OTP
23V56B	10	05MAY03	16MAY03	88	Tank U-106 Engineering Plan OTP Safety Sys
23V56D	12	18JUL03	30JUL03	60	Tank U-106 Perform OTP
23V56E	10	26AUG03	05SEP03	92	Tank U-106 OTP Closeout
23V60A	10	05MAY03	16MAY03	97	Tank U-106 Hydro - Planning (1 Xir Line) (3)
23V60B	1	16MAY03	16MAY03	97	Tank U-106 Hydro - Stage Equipment (3)
23V60C	4	20MAY03	23MAY03	97	Tank U-106 Hydro - Set Up (3)
23V60D	3	27MAY03	29MAY03	97	Tank U-106 Hydro - Perform Hydro Test (3)
23V60E	8	30MAY03	06JUN03	97	Tank U-106 Hydro - Reconfig Pits/Restore (3)
23V62A	20	14AUG03	11SEP03	23	Tank U-106 Pit Jmp/Mod Cover Bldg Planning
23V62B	1	12SEP03	12SEP03	23	Tank U-106 Pit Jmp/Mod Cover Bldg Stage Expt
23V62C	3	15SEP03	17SEP03	23	Tank U-106 Pit Jmp/Mod Cover Bldg Field Work
23V62D	1	18SEP03	18SEP03	23	Tank U-106 Pit Jmp/Mod Cover Bldg
23V62E	2	19SEP03	21SEP03	23	Tank U-106 Pit Jmp/Mod Cover Bldg Restoration
23V64A	10	06SEP03	22SEP03	23	Tank U-106 Planning
23V64B	1	23SEP03	23SEP03	23	Tank U-106 Stage/Prep Equipment
23V64C	4	24SEP03	28SEP03	23	Tank U-106 Port Lance/Install Screen
23V64D	1	30SEP03	30SEP03	23	Tank U-106 Restoration
23V72A	20	22SEP03	12OCT03	8	Tank U-106 Write Xir Procedure for SW Pumping
23V72B	2	20OCT03	21OCT03	8	Tank U-106 Perform Mgt Assessment Pre-Start

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23V720		22OCT03	22OCT03	6	Frame 000 FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13
1.01.02.01.04.48.08.02 Pump Tank U-106					Tank U-106 Perform Pressure for SW Pumping
23V7201	153	01NOV03	01APR04	0	Pump Tank U-106
23V7202	104	03NOV03	02APR04	123	Tank U-106 Perf Weekly Flush during SW Pumping
1.01.02.01.04.48.06.03 SWP System Maint & Operability Tank U-106					
23V88A	104	03NOV03	02APR04	123	Tank U-106 (Annual) CM
23V88D	104	03NOV03	02APR04	123	Tank U-106 Saltwell System PMs (Annual)
1.01.02.01.04.48.06.04 Isolation & Intrusion Prevention Tank U-106					
23V78A1	5	28MAR04	01APR04	30	Tank U-106 Prepare WP for In-Tank Video
23V78A2	1	02APR04	02APR04	86	Tank U-106 Perform In-Tank Video
23V78B1	60	12MAY04	10JUL04	2	Tank U-106 Evaluate SW Pumping Data
23V78B2	2	09JUL04	12JUL04	0	Tank U-106 Evaluate In-Tank Video Data
23V78B3	10	13JUL04	26JUL04	0	Tank U-106 Prep Justif Letter/Decision Complete
23V80A	30	20FEB04	01APR04	70	Tank U-106 Fil Isolation Design
23V80B	10	08APR04	16APR04	66	Tank U-106 Isolation Planning
23V80C	10	27JUL04	09AUG04	0	Tank U-106 Isolation Stage Equipment
23V80D	10	10AUG04	23AUG04	0	Tank U-106 Isolation Work
23V80E	20	24AUG04	21SEP04	0	Tank U-106 Isolation Complete Documentation
23V80S	0		21SEP04	0	Tank U-106 Tank Stabilization/Isolation Compl
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					
23V105C	6	05APR02	09APR02	20	Tank U-107 Per Tank Walkdown
23V106C	30	03APR02	14MAY02	47	Tank U-107 Inst Den - Upgr WFFIE
23V100C	25	10APR02	14MAY02	60	Tank U-107 Prep/Aggr ECN Cover Block Model
23V100E	25	10APR02	14MAY02	67	Tank U-107 Prep Den Model to Install FG Monitor

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
23W10K	25	10APR02	14MAY02	83														Tank U-107 Instl Den - SWP Screen
23W10L	30	10APR02	21MAY02	28														Tank U-107 Instl Den - Install Pump Jumper
23W10M	25	10APR02	14MAY02	20														Tank U-107 Instl Den - Instl Vtr Pft Pump
23W15B	40	22MAY02	19JUL02	29														Tank U-107 New Pump Jumper (1 ea)
23W15D	40	15MAY02	12JUL02	20														Tank U-107 Feb Pft Valve Jumpers (5)
23W20A	18	22JUL02	09AUG02	28														Tank U-107 Plan/Modify Pump
23W20B	10	22JUL02	02AUG02	28														Tank U-107 Plan Run-in
23W20C	3	05AUG02	07AUG02	29														Tank U-107 Pump Run-in
23W30A	10	01MAY02	14MAY02	67														Tank U-107 FGM Planning
23W30B	6	15MAY02	21MAY02	87														Tank U-107 FGM Instl
23W30C	2	28MAY02	29MAY02	67														Tank U-107 FGM Perform Calibration
23W30D	3	22MAY02	24MAY02	67														Tank U-107 FGM Perform OYP
23W40C	30	18MAY02	28JUN02	47														Tank U-107 Upgrade WFI Cabinet
23W50A	10	01MAY02	14MAY02	83														Tank U-107 Saltwell Screen Planning
23W50B	1	15MAY02	15MAY02	83														Tank U-107 Saltwell Screen - Stage & Prep
23W50C	2	18MAY02	17MAY02	83														Tank U-107 Saltwell Screen - Install
23W50D	1	20MAY02	20MAY02	83														Tank U-107 Saltwell Screen - Restoration
23W64A	3	10JUN02	12JUN02	27														Tank U-107 Review/Verify Profile Bkt Complete
23W54A2	5	13JUN02	18JUN02	53														Tank U-107 Calc Inputs for Time 25% LFL Determin
23W54A3	2	20JUN02	21JUN02	53														Tank U-107 Calc Inputs for Time 25% LFL Determin
23W54A4	2	20JUN02	21JUN02	53														Tank U-107 Determin DCRT Time to 25% LFL Determin
23W54A5	8	24JUL02	31JUL02	27														Tank U-107 Compl Compliance/WHY Compliance Table
23W54A6	3	01AUG02	05AUG02	27														Tank U-107 Write/Review Issue White Paper

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23W54A	8	06AUG02	12AUG02	27	Tank U-107 Perform Assessment/Rev/Approve Pkg
23W54B	5	13AUG02	18AUG02	23	Tank U-107 Management review & approval
23W54B1	2	10JUN02	11JUN02	27	Tank U-107 Review AHOVA Results
23W54B2	5	12JUN02	18JUN02	23	Tank U-107 Gather Process Data (EVAP/FLOW Rate)
23W54B3	8	18JUN02	25JUN02	27	Tank U-107 Perform Calculations
23W54B4	3	25JUN02	28JUN02	23	Tank U-107 Prepare Appendix to SO
23W54B5	18	01JUL02	23AUG02	27	Tank U-107 Write Supporting Document
23W56A	10	03APR02	16APR02	85	Tank U-107 Plan OTP
23W56B	10	03APR02	16APR02	86	Tank U-107 Engineering Plan OTP Saltwell Sys
23W56D	12	11JUN02	23JUN02	47	Tank U-107 Perform OTP
23W56E	10	25JUL02	07AUG02	29	Tank U-107 OTP Closeout
23W60A	10	06APR02	16APR02	88	Tank U-107 Hydro - Planning (1 Xlt Line) (2)
23W60B	7	17APR02	17APR02	98	Tank U-107 Hydro - Stage Equipment (2)
23W60D	3	16APR02	22APR02	88	Tank U-107 Hydro - Perform Hydro Test (2)
23W60E	5	23APR02	28APR02	98	Tank U-107 Hydro - Recalling Pits/Westlake (2)
23W62A	20	15JUL02	06AUG02	20	Tank U-107 Pit Unpaved Cover Blks Planning
23W62B	7	12AUG02	12AUG02	20	Tank U-107 Pit Unpaved Cover Blks Stage Bldg
23W62C	3	13AUG02	16AUG02	20	Tank U-107 Pit Unpaved Cover Blks Field Work
23W62D	1	16AUG02	16AUG02	20	Tank U-107 Pit Unpaved Cover Blks
23W62E	2	19AUG02	20AUG02	20	Tank U-107 Pit Unpaved Cover Blks Restoration
23W64A	10	07AUG02	20AUG02	20	Tank U-107 Planning
23W64B	1	27AUG02	27AUG02	20	Tank U-107 Stage/Prep Equipment
23W64C	4	22AUG02	27AUG02	20	Tank U-107 Port Lance/Install Screen

Activity ID	Orig Dwr	Early Start	Early Finish	Total Float	
23W74D	1	26AUG02	28AUG02	20	Tank U-107 Restoration
23W72A	20	26AUG02	28AUG02	20	Tank U-107 Wipe X6 Procedure for SW Pumping
23W72B	2	27AUG02	28AUG02	20	Tank U-107 Perform Mgt Assessment Pre-Start
23W72C	2	28AUG02	30AUG02	20	Tank U-107 Perform Preced's for SW Pumping
1.01.02.01.04.48.07.02 Pump Tank U-107					
23W72D1	350	01OCT02	30OCT03	0	Pump Tank U-107
23W72D2	271	01OCT02	28OCT03	230	Tank U-107 Perf Weekly Flush during SW Pumping
1.01.02.01.04.48.07.03 SWP System Maint & Operability Tank U-107					
23W78A	271	01OCT02	28OCT03	230	Tank U-107 (Annual) CM
23W78D	271	01OCT02	28OCT03	230	Tank U-107 Ballwell System Pmts (Annual)
1.01.02.01.04.48.07.04 Isolation & Intrusion Prevention Tank U-107					
23W78A1	5	24OCT03	30OCT03	0	Tank U-107 Prepare WVP for In-Tank Video
23W78A2	1	31OCT03	31OCT03	38	Tank U-107 Perform In-Tank Video
23W78B1	80	31OCT03	29DEC03	0	Tank U-107 Evaluate SW Pumping Data
23W78B2	2	24DEC03	29DEC03	0	Tank U-107 Evaluate In-Tank Video Data
23W78B3	10	30DEC03	13JAN04	0	Tank U-107 Prep Juck/Lower/Decide Complete
23W78D	30	18SEP03	30OCT03	48	Tank U-107 Fit Isolation Design
23W78B	10	03NOV03	14NOV03	37	Tank U-107 Isolation Planning
23W78C	10	14JAN04	27JAN04	0	Tank U-107 Isolation Stage Equipment
23W78D	10	26JAN04	10FEB04	0	Tank U-107 Isolation Work
23W78E	20	11FEB04	10MAR04	0	Tank U-107 Isolation Complete Documentation
23W78F	0		10MAR04	0	Tank U-107 Tank Stabilization/Isolation Compl
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					
23X05C	5	04SEP01	10SEP01	101	Tank U-108 Per Tank Walkdown

Activity ID	Orig Day	Early Start	Early Finish	Total Float	
23X10C	30	04SEP01	15OCT01	128	Tank U-108 Inst Dsn - Upgr WFI
23X10D	28	11SEP01	15OCT01	161	Tank U-108 Prep/Upgr EGN Cover Block Modif
23X10E	25	11SEP01	15OCT01	148	Tank U-108 Prep Dsn Modif to Install FG Monitor
23X10K	25	11SEP01	15OCT01	184	Tank U-108 Inst Dsn - SWP Screen
23X10L	30	11SEP01	22OCT01	110	Tank U-108 Inst Dsn - Install Pump Jumper
23X10M	28	11SEP01	15OCT01	161	Tank U-108 Inst Dsn - Instl Vlv Pnt Jump (2)
23X15B	40	29OCT01	19DEC01	110	Tank U-108 New Pump Jumper (1 ea)
23X15C	40	18OCT01	12DEC01	101	Tank U-108 Fab Pnt Valve Jumpers (2)
23X20A	18	20DEC01	18JAN02	110	Tank U-108 Plan/Modify Pump
23X20B	10	20DEC01	08JAN02	110	Tank U-108 Plan Run-In
23X20C	3	08JAN02	11JAN02	110	Tank U-108 Pump Run-In
23X30A	10	14DEC01	02JAN02	87	Tank U-108 FGM Planning
23X30B	6	03JAN02	05JAN02	87	Tank U-108 FGM Install
23X30C	2	15JAN02	16JAN02	97	Tank U-108 FGM Perform Calibration
23X30D	3	10JAN02	14JAN02	87	Tank U-108 FGM Perform OIP
23X40A	10	14DEC01	02JAN02	174	Tank U-108 Exhauster Planning
23X40B	5	21OEC01	02JAN02	174	Tank U-108 Sags Modif
23X40G	6	11JAN02	18JAN02	174	Tank U-108 (OIP) Exhauster
23X45C	30	14NOV01	02JAN02	107	Tank U-108 Upgrade WFI Cabinet
23X50A	10	02OCT01	18OCT01	164	Tank U-108 Siltwell Screen Planning
23X50B	1	16OCT01	16OCT01	164	Tank U-108 Siltwell Screen - Stage B Prep
23X50C	2	17OCT01	18OCT01	164	Tank U-108 Siltwell Screen - Install
23X50D	1	19OCT01	19OCT01	164	Tank U-108 Siltwell Screen - Restoration

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23X54A1	3	19MAR02	21MAR02	22	Task U-108 Review/Verify Profile SRI Complete
23X54A2	5	22MAR02	26MAR02	48	Task U-108 Calc Inputs for Time 25% LFL Detenn
23X54A3	2	26MAR02	01APR02	48	Task U-108 Calc Inputs for Time 25% LFL Detenn
23X54A4	2	29MAR02	01APR02	48	Task U-108 Detenn DCRT Time to 25% LFL Detenn
23X54A5	6	30APR02	07MAY02	22	Task U-108 Compl Competibility Compliance Table
23X54A6	3	08MAY02	10MAY02	22	Task U-108 Write/Review Issue White Paper
23X54A7	5	13MAY02	17MAY02	22	Task U-108 Perform Assessment/Rev/Approve Pkg
23X54A8	5	20MAY02	24MAY02	22	Task U-108 Management review & approval
23X54B1	2	19MAR02	20MAR02	22	Task U-108 Review ANOVA Results
23X54B2	5	21MAR02	27MAR02	22	Task U-108 Gather Process Data (EVAP/FLOW Rate)
23X54B3	5	28MAR02	02APR02	22	Task U-108 Perform Calculations
23X54B4	3	04APR02	06APR02	22	Task U-108 Prepare Appendix to SD
23X54B5	15	05APR02	20APR02	22	Task U-108 Write Supporting Document
23X56A	10	14DEC01	02JAN02	95	Task U-108 Plan OTP
23X56B	10	14DEC01	02JAN02	95	Task U-108 Engineering Plan OTP Software Sys
23X56D	12	02JAN02	18JAN02	95	Task U-108 Perform OTP
23X56E	10	21JAN02	01FEB02	95	Task U-108 OTP Closeout
23X58A	10	19SEP01	02OCT01	164	Task U-108 Hydro - Planning (1 Xfr Line) (4)
23X58B	1	03OCT01	03OCT01	164	Task U-108 Hydro - Stage Equipment (4)
23X58C	4	04OCT01	08OCT01	164	Task U-108 Hydro - Set Up (4)
23X58D	3	10OCT01	12OCT01	164	Task U-108 Hydro - Perform Hydro Test (4)
23X58E	5	16OCT01	19OCT01	164	Task U-108 Hydro - Reconfig Piz/Restore (4)
23X62A	20	13DEC01	15JAN02	101	Task U-108 Pil JmpoMed Cover Bkt Planning (3)

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23X62B	1	16JAN02	16JAN02	101	Tank U-108 Pft Impr/Mod Cover Blks Stage Expt (3)
23X63C	3	17JAN02	21JAN02	101	Tank U-108 Pft Impr/Mod Cover Blks Field Work (3)
23X62D	1	22JAN02	22JAN02	101	Tank U-108 Pft Impr/Mod Cover Blks (3)
23X62E	2	23JAN02	24JAN02	101	Tank U-108 Pft Impr/Mod Cover Blks Restoration (3)
23X64A	10	11JAN02	24JAN02	101	Tank U-108 Planning
23X64B	1	04FEB02	04FEB02	95	Tank U-108 Stages/Prep Equipment
23X64C	4	05FEB02	08FEB02	95	Tank U-108 Part Lencq/Insp/Pl Borden
23X64D	1	11FEB02	11FEB02	95	Tank U-108 Restoration
23X72A	20	24APR02	21MAY02	23	Tank U-108 Write Xtr Procedure for SW Pumping
23X72B	2	23MAY02	24MAY02	22	Tank U-108 Perform Mgt Assessment Pre-Start
23X72C	2	28MAY02	29MAY02	22	Tank U-108 Perform Presq's for SW Pumping
1.01.02.01.04.48.08.02 Pump Tank U-108					
23X72D1	405	01JUL02	28SEP03	0	Pump Tank U-108
23X72D2	364	01JUL02	30SEP03	250	Tank U-108 Pftl Weekly Flush during SW Pumping
1.01.02.01.04.48.08.03 SWP System Maint & Operability Tank U-108					
23X68A	309	01JUL02	19SEP03	250	Tank U-108 (Annual) CM
23X68B	314	01JUL02	30SEP03	250	Tank U-108 (Annual) PM
1.01.02.01.04.48.08.04 Isolation & Intrusion Prevention Tank U-108					
23X78A1	5	24OCT03	30OCT03	0	Tank U-108 Prepare WP for In-Tank Video
23X78A2	1	31OCT03	31OCT03	35	Tank U-108 Perform In-Tank Video
23X78B1	60	31OCT03	28DEC03	0	Tank U-108 Evaluate SW Pumping Data
23X78B2	2	24DEC03	29DEC03	0	Tank U-108 Evaluate In-Tank Video Data
23X78B3	10	30DEC03	13JAN04	0	Tank U-108 Prep Justif Letter/Declare Complete
23X80A	30	19SEP03	30OCT03	48	Tank U-108 Pft Isolation Design

Activity ID	Orig Dtr	Early Start	Early Finish	Total Float
23X60B	10/03NOV03	14NOV03		37
23X60C	10/14JAN04	27JAN04		0
23X60D	10/26JAN04	10FEB04		0
23X60E	20/17FEB04	10MAR04		0
23X60S	0	10MAR04		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

23Y09C	5/27JUN02	03JUL02		22
23Y10C	30/27JUN02	09AUG02		49
23Y10D	25/06JUL02	09AUG02		62
23Y10E	25/06AUG02	09AUG02		66
23Y10K	25/08JUL02	09AUG02		66
23Y10L	30/06AUG02	15AUG02		31
23Y10M	25/08JUL02	09AUG02		22
23Y15B	40/19AUG02	17OCT02		31
23Y15D	40/12AUG02	07OCT02		22
23Y20A	15/15OCT02	04NOV02		81
23Y20B	10/15OCT02	28OCT02		31
23Y20C	3/29OCT02	31OCT02		31
23Y30A	10/28JUL02	09AUG02		69
23Y30B	5/12AUG02	16AUG02		69
23Y30C	2/22AUG02	23AUG02		69
23Y30D	3/19AUG02	21AUG02		68
23Y40A	10/08JUL02	18JUL02		310

1.01.02.01.04.48.09.01.01 Prepare Tank U-109 for Pumping

Tank U-108 Isolation Planning

Tank U-108 Isolation Stage Equipment

Tank U-108 Isolation Work

Tank U-108 Isolation Complete Documentation

Tank U-108 Tank Stabilization/Isolation Compl

Tank U-109 Per Tank Walkdown

Tank U-109 Inlet Den - Upgr WFE

Tank U-108 Prep/Appro EGM Cover Block Modif

Tank U-109 Prep Den Media to Install FG Monitor

Tank U-109 Inlet Den - SWP Boreen

Tank U-109 Inlet Den - Install Pump Jumper

Tank U-109 Inlet Den - Install Vlv Pst Jump

Tank U-109 New Pump Jumper (1 ea)

Tank U-109 Fld Pst Vlv Jumper (1)

Tank U-109 Plan/Moddy Pump

Tank U-109 Plan Run-In

Tank U-109 Pump Run-In

Tank U-109 FGM Planning

Tank U-109 FGM Initial

Tank U-109 FGM Perform Calibration

Tank U-109 FGM Perform QTP

Tank U-109 Exhauster Planning

Activity ID	Orig Dar	Early Start	Early Finish	Total Float	
23Y40B	5	15JUL02	18JUL02	340	Tank U-108 Stage Materials
23Y40C	6	30JUL02	06AUG02	340	Tank U-109 (OTF) Exhauster
23Y40D	30	12AUG02	29SEP02	49	Tank U-109 Upgrade/WPIE Cabinet
23Y50A	10	29JUL02	06AUG02	85	Tank U-109 Software Screen Planning
23Y50B	1	12AUG02	12AUG02	85	Tank U-109 Software Screen - Stage & Prep
23Y50C	2	13AUG02	14AUG02	85	Tank U-109 Software Screen - Metall
23Y50D	1	15AUG02	15AUG02	85	Tank U-109 Software Screen - Restoration
23Y51A1	3	09SEP02	11SEP02	27	Tank U-109 Review/Verify Profile Shx Complete
23Y51A2	5	12SEP02	18SEP02	53	Tank U-109 Calc Inputs for Time 25% LFL Determin
23Y51A3	2	18SEP02	20SEP02	53	Tank U-109 Calc Inputs for Time 25% LFL Determin
23Y51A4	2	18SEP02	20SEP02	53	Tank U-109 Determine DCRT Time to 25% LFL Determin
23Y51A5	5	21OCT02	28OCT02	27	Tank U-109 Compl Competability Compliance Table
23Y51A6	5	29OCT02	31OCT02	27	Tank U-109 Write/Review Issue White Paper
23Y51A7	5	01NOV02	07NOV02	27	Tank U-109 Perform Assessment/Rev/Approve Pkg
23Y51A8	5	08NOV02	14NOV02	27	Tank U-109 Management review & approval
23Y51B1	2	09SEP02	10SEP02	27	Tank U-108 Review ANOVA Results
23Y51B2	5	11SEP02	17SEP02	27	Tank U-109 Gather Process Data (EVAP/FLW Rate)
23Y51B3	5	18SEP02	24SEP02	27	Tank U-109 Perform Calculations
23Y51B4	3	25SEP02	27SEP02	27	Tank U-109 Prepare Appendix to SD
23Y51B5	16	30SEP02	18OCT02	27	Tank U-109 Write Supporting Document
23Y55A	10	27JUN02	12JUL02	87	Tank U-108 Plan OTP
23Y55B	10	27JUN02	12JUL02	87	Tank U-109 Engineering Plan OTP Software Sys
23Y56D	12	06SEP02	23SEP02	49	Tank U-109 Perform OTP

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Activity ID	Orig Dur	Early Start	Early Finish	Total Float	FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13
23Y60E	10	18OCT02	31OCT02	31	Tank U-109 OTP Closeout
23Y60A	10	27JUN02	12JUL02	96	Tank U-109 Hydro - Planning (1 Xtr Lase) (3)
23Y60B	1	15JUL02	15JUL02	88	Tank U-109 Hydro - Stage Equipment (3)
23Y60C	4	18JUL02	19JUL02	98	Tank U-109 Hydro - Set Up (3)
23Y60D	5	22JUL02	24JUL02	88	Tank U-109 Hydro - Perform Hydro Test (3)
23Y60E	5	25JUL02	31JUL02	96	Tank U-109 Hydro - Reconfig Pits/Restores (3)
23Y62A	20	08OCT02	04NOV02	22	Tank U-109 P4 ImprMod Cover Blks Planning
23Y62B	1	05NOV02	05NOV02	22	Tank U-109 P4 ImprMod Cover Blks Stage Eqp
23Y62C	3	08NOV02	09NOV02	22	Tank U-109 P4 ImprMod Cover Blks Field Work
23Y62D	1	11NOV02	11NOV02	22	Tank U-109 P4 ImprMod Cover Blks
23Y62E	2	12NOV02	13NOV02	22	Tank U-109 P4 ImprMod Cover Blks Restoration
23Y64A	10	31OCT02	13NOV02	22	Tank U-109 Planning
23Y64B	1	14NOV02	14NOV02	22	Tank U-109 Stage/Prep Equipment
23Y64C	4	16NOV02	20NOV02	22	Tank U-109 Port Lance/Install Screen
23Y64D	1	21NOV02	21NOV02	22	Tank U-109 Restoration
23Y72A	20	18OCT02	14NOV02	28	Tank U-109 Write Xtr Procedure for SW Pumping
23Y72B	2	20NOV02	21NOV02	22	Tank U-109 Perform Mgt Assessment Pre-Start
23Y72C	2	22NOV02	23NOV02	22	Tank U-109 Perform Param's for SW Pumping
1.01.02.01.04.48.09.02 Pump Tank U-109					Pump Tank U-109
23Y72D1	428	01JAN03	01MAR04	0	
23Y72D2	293	02JAN03	02MAR04	148	Tank U-109 Port Weekly Flush during SW Pumping
1.01.02.01.04.48.09.03 SWP System Maint & Operability Tank U-109					Tank U-109 (Annual) CM
23Y88A	258	02JAN03	02MAR04	148	
23Y88B	258	02JAN03	02MAR04	148	Tank U-109 (Annual) PM

Activity ID	Orig Desc	Early Start	Early Finish	Total Float	
1.01.02.01.04.48.09.04 Isolation & Intrusion Prevention Tank U-109					1Y001Y002Y003Y004Y005Y006Y007Y008Y009Y010Y011Y012Y013
23Y78A1		5/24FEB04	01MAR04	29	Tank U-109 Prepare WP for In-Tank Video
23Y78A2		1/02MAR04	02MAR04	36	Tank U-109 Perform In-Tank Video
23Y78B1		05/11APR04	08JUN04	0	Tank U-109 Evaluate SW Pumping Data
23Y78B2		2/08JUN04	08JUN04	0	Tank U-109 Evaluate In-Tank Video Data
23Y78B3		10/10JUN04	25JUN04	0	Tank U-109 Prep JWH Lower/Declare Complete
23Y80A		30/19JAN04	01MAR04	81	Tank U-109 P4 Isolation Design
23Y80B		10/03MAR04	16MAR04	70	Tank U-109 Isolation Planning
23Y80C		10/24JUN04	08JUL04	0	Tank U-109 Isolation Stage Equipment
23Y80D		10/12JUL04	23JUL04	0	Tank U-109 Isolation Work
23Y80E		20/26JUL04	20AUG04	0	Tank U-109 Isolation Complete Documentation
23Y80F		0	20AUG04	0	Tank U-109 Tank Stabilization/Isolation Compl
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					
230634H1		30/14JUL03	22AUG03	258	Tank U-110 P11 Isolation Design
230634H2		10/26JUL03	06AUG03	268	Tank U-110 Isolation Planning
230634H3		10/25AUG03	08SEP03	236	Tank U-110 Isolation Stage Equipment
230634H4		10/08SEP03	22SEP03	238	Tank U-110 Isolation Work
230634H5		20/23SEP03	20OCT03	236	Tank U-110 Isolation Complete Documentation
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					
23210C		5/06DEC01	12DEC01	21	Tank U-111 Per Tank Walkdown
23210D		30/13DEC01	26JAN02	144	U-111 Inst Dan - Upper WFE
23210E		25/13DEC01	22JAN02	182	Tank U-111 Prep/Appro EON Cover Block Model
23210F		25/13DEC01	22JAN02	169	Tank U-111 Prep Dan Media to Install PG Monitor

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Activity ID	Orig. Dur.	Early Start	Early Finish	Total Float	
23210K	25	13DEC01	23JAN02	21	Tank U-111 Instl Den - SUMP Screen
23210L	50	13DEC01	29JAN02	131	Tank U-111 Instl Den - Install Pump Jumper
23210M	25	13DEC01	23JAN02	122	Tank U-111 Instl Den - Instl Vlv Pk Jump (2)
23215B	40	30JAN02	27MAR02	131	U-111 New Pump Jumper (1 ea)
23215D	40	23JAN02	20MAR02	122	Tank U-111 Feb Pk Valve Jumpers (2)
23220A	15	28MAR02	17APR02	151	Tank U-111 Plan/Modify Pump
23220B	10	28MAR02	16APR02	151	Tank U-111 Plan Run-In
23220C	3	11APR02	15APR02	151	Tank U-111 Pump Run-In
23225A	10	04FEB02	16FEB02	24	Tank U-111 Write PM/TSAP
23225B	22	04FEB02	06MAR02	24	Tank U-111 Plan/Schedule/Obtain Materials
23225C	3	12MAR02	14MAR02	21	Tank U-111 Obtain Grab Sample
23225D	06	15MAR02	17JUN02	21	Tank U-111 Analyze Grab Sample
23225E	22	18JUN02	19JUL02	21	Tank U-111 Issue Lab Analysis Final Report
23225F	1	25JUL02	23JUL02	21	Tank U-111 Enter Lab Data into TCD
23230A	10	09JAN02	22JAN02	169	Tank U-111 FGM Planning (2)
23230B	5	23JAN02	28JAN02	169	Tank U-111 FGM Install (2)
23230C	2	04FEB02	05FEB02	169	Tank U-111 FGM Perform Calibration (2)
23230D	3	30JAN02	01FEB02	169	Tank U-111 FGM Perform OVP (2)
23245C	30	30JAN02	13MAR02	144	Tank U-111 Upgrade/WFIE Cabinet
23250A	10	09JAN02	22JAN02	21	Tank U-111 Saltwell Screen Planning
23250B	1	23JAN02	23JAN02	21	Tank U-111 Saltwell Screen - Stage & Prep
23250C	2	24JAN02	25JAN02	21	Tank U-111 Saltwell Screen - Install
23250D	1	28JAN02	28JAN02	185	Tank U-111 Saltwell Screen - Restoration

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
23254A1	5	25JUL02	25JUL02	21	Tank U-111 Review/Verify Profile Shk Complete
23254A2	5	26JUL02	01AUG02	47	Tank U-111 Calc Inputs for Time 25% LFL Determin
23254A3	2	02AUG02	05AUG02	47	Tank U-111 Calc Inputs for Time 25% LFL Determin
23254A4	2	02AUG02	05AUG02	47	Tank U-111 Determin DCRT Time to 25% LFL Determin
23254A5	6	04SEP02	11SEP02	21	Tank U-111 Compl Computability Compliance Table
23254A6	3	12SEP02	15SEP02	21	Tank U-111 Write/Review Issue White Paper
23254A7	5	17SEP02	23SEP02	21	Tank U-111 Perform Assessment/Review/Approve Pkg
23254A8	5	24SEP02	30SEP02	21	Tank U-111 Management review & approval
23254B1	2	23JUL02	24JUL02	21	Tank U-111 Review ANDVA Results
23254B2	5	25JUL02	31JUL02	21	Tank U-111 Gather Process Data (EVAPFLOW Rate)
23254B3	8	01AUG02	07AUG02	21	Tank U-111 Performs Calculations
23254B4	3	08AUG02	12AUG02	21	Tank U-111 Prepare Appendix to SD
23254B5	15	13AUG02	03SEP02	21	Tank U-111 Write Supporting Document
23256A	10	14DEC01	02JAN02	181	Tank U-111 Plan OTP
23256B	10	14DEC01	02JAN02	181	Tank U-111 Engineering Plan OTP Software Sys
23256D	12	28FEB02	13MAR02	144	Tank U-111 Perform OTP
23256E	10	02APR02	16APR02	131	Tank U-111 OTP Checkout
23260A	10	06DEC01	19DEC01	105	Tank U-111 Hydro - Planning (1 Xtr Line) (2)
23260B	1	20DEC01	20DEC01	196	Tank U-111 Hydro - Blage Equipment (2)
23260C	4	21DEC01	31DEC01	105	Tank U-111 Hydro - Set Up (2)
23260D	3	02JAN02	04JAN02	196	Tank U-111 Hydro - Perform Hydro Test (2)
23260E	5	07JAN02	11JAN02	196	Tank U-111 Hydro - Reconfig P&ID/Restore (2)
23262A	20	21MAR02	17APR02	122	Tank U-111 P&ID Imp/Mod Cover Blage Planning (2)

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Activity ID	Orig. Dev.	Early Start	Early Finish	Total Float	
23262B	1	18APR02	18APR02	122	Tank U-111 PI Imprinted Cover Bldg Stage Equip (2)
23262C	3	18APR02	23APR02	122	Tank U-111 PI Imprinted Cover Bldg Field Work (2)
23262D	1	24APR02	24APR02	122	Tank U-111 PI Imprinted Cover Bldg (3)
23262E	2	25APR02	26APR02	122	Tank U-111 PI Imprinted Cover Bldg Restore (2)
23264A	10	15APR02	26APR02	122	Tank U-111 Planning
23264B	1	26APR02	26APR02	122	Tank U-111 Stages/Prep Equipment
23264C	4	30APR02	03MAY02	122	Tank U-111 Perf Lance/Install Screen
23264D	1	06MAY02	06MAY02	122	Tank U-111 Restoration
23272A	20	03SEP02*	30SEP02	19	Tank U-111 While XR Procedure for SW Pumping
23272B	2	04OCT02	04OCT02	19	Tank U-111 Perform Mgt Assessment Pre-Start
23272C	2	08OCT02	04OCT02	19	Tank U-111 Perform Prep's for SW Pumping
1.01.02.01.04.48.11.02 Pump Tank U-111					
23272D1	304	01NOV02*	31AUG03	0	Pump Tank U-111
23272D2	207	01NOV02	29AUG03	271	Tank U-111 Perf Weekly Flush during SW Pumping
1.01.02.01.04.48.11.03 SWP System Maint & Operability Tank U-111					
23288A		207 01NOV02	29AUG03	271	Tank U-111 (Annual) CM
23288B		207 01NOV02	29AUG03	271	Tank U-111 (Annual) PM
1.01.02.01.04.48.11.04 Isolation & Intrusion Prevention Tank U-111					
23278A1		5/24OCT03	30OCT03	0	Tank U-111 Prepare WP for In-Tank Video
23278A2		1/31OCT03	31OCT03	35	Tank U-111 Perform In-Tank Video
23278B1		60/31OCT03	29DEC03	0	Tank U-111 Evaluate SW Pumping Data
23278B2		2/24DEC03	29DEC03	0	Tank U-111 Evaluate In-Tank Video Data
23278B3		10/30DEC03	13JAN04	0	Tank U-111 Prep Justif Letter/Declare Complete
23280A		30/19SEP03	30OCT03	48	Tank U-111 PI Isolation Design

Activity ID	Orig Dur	Early Start	Early Finish	Total Float	
232808	10	03NOV03	14NOV03	37	Tank U-111 Isolation Planning Tank U-111 Isolation Stage Equipment Tank U-111 Isolation Work Tank U-111 Isolation Complete Documentation Tank U-111 Tank Stabilization/Isolation Compl
232809	10	14JAN04	21JAN04	0	
232810	10	23JAN04	10FEB04	0	
232806	20	11FEB04	10MAR04	0	
232805	0		10MAR04	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					
23Y40E	6	03JAN02	10JAN02	119	Tank U-103 Installation & Tie-In
23Y40E	6	03JAN02	10JAN02	174	Tank U-108 Installation & Tie-In
23Y40E	6	22JUL02	28JUL02	310	Tank U-109 Installation & Tie-In
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					
23T17A1	10	02APR01*	13APR01	172	Perform Eng W/D's/Project Planning 244-U
23T17A2	50	02APR01*	24JUL01	162	Prepare ECM's for 244-U
23T17A3	20	02APR01*	27APR01	202	Revise Maintenance Procedures 244-U
23T17A4	10	02APR01*	13APR01	302	Environmental Permitting for 244-U
23T17A5	25	18APR01	18MAY01	172	Prepare/Approve WIP 244-U
23T17B1	20	14MAY01	11JUN01	262	Procure Equipment for Installation 244-U
23T17B2	10	21MAY01	04JUN01	187	Perform Site Preparation 244-U
23T17B3	10	21MAY01	04JUN01	172	Install Equipment Labels 244-U
23T17B4	20	28JUN01	24JUL01	162	Perform PMA/CM on Existing Equip 244-U
23T17B5	20	07MAY01	04JUN01	257	Revise Ops Procedures 244-U
23T17B6	25	05JUN01	10JUL01	172	Prepare OPA's 1 & 4 for 244-U
23T17C1	10	26JUL01	07AUG01	182	Perform Operational Testing (OTP) 244-U
23T17C2	10	05JUN01	18JUN01	257	Perform Training 244-U

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Activity ID	Orig Car	Early Start	Early Finish	Total Float	
23T17C3	40	08AUG01	31OCT01	162	1EY01EY02EY03EY04EY05EY06EY07EY08EY09EY10EY11EY12EY13
23T192A	337	01JUL02	31OCT03	227	Perform Readiness Assessment 244-U
23T32B1	337	01JUL02	31OCT03	227	☐ Tank U-103 Prepare WP for DCRT PM's & CM's
23T32B2	337	01JUL02	31OCT03	227	☐ Tank U-103 Perform Preventative Maintenance on DCRT
23V32A	103	03NOV03	01APR04	124	☐ Tank U-103 Perform Corrective Maintenance on DCRT
23V32B1	103	03NOV03	01APR04	124	☐ Tank U-106 Prepare WP for DCRT PM's & CM's
23V32B2	103	03NOV03	01APR04	124	☐ Tank U-106 Perform Preventative Maintenance on DCRT
23X32A	247	01JUL02	24JUN03	269	☐ Tank U-106 Perform Corrective Maintenance on DCRT
23X32B1	258	01JUL02	09JUL03	308	☐ Tank U-105 Prepare WP for DCRT PM's & CM's
23X32B2	245	01JUL02	22JUL03	296	☐ Tank U-105 Perform Preventative Maintenance on DCRT
0247A	440	01JUL02	01APR04	0	☐ Tank U-105 Perform Corrective Maintenance on DCRT
1.01.02.01.04.48.40 241-U Tank Farm Annual Hydro					DCRT 244-U for SST 241-U Tank Farm
1.01.02.01.04.48.40.01 241-U Tank Farm Annual Hydro					
23T74A	18	23OCT02	12NOV02	450	Farm U Annual Hydro - Planning (FY03)
23T74B	3	23OCT02	25OCT02	452	Farm U Annual Hydro - Stage Equipment (FY03)
23T74C	5	13NOV02	19NOV02	450	Farm U Annual Hydro - Set Up (FY03)
23T74D	8	26NOV02	03DEC02	450	Farm U Annual Hydro - Perform Hydro Test (FY03)
23T74E	7	04DEC02	12DEC02	450	Farm U Annual Hydro - Reciprocal Pipe Response (FY03)
1.01.02.01.04.72 SST Stabilization Pumping					
1.01.02.01.04.72.01 Pumping for Remaining SST's (29)					
7201-310	599	01JUN98	17OCT00	0	Pumping Summary 1 Crew-1
7201-341	689	01SEP98	30MAY02	0	Pumping Summary 2 Crew-2
7201-321	742	01AUG00	18JUL03	0	Pumping Summary 3 Crew-1
7201-331	936	01JUL02	30OCT03	0	Pumping Summary 4 Crew 3
7201-341	935	02DEC02	01APR04	0	Pumping Summary 5 Crew 3

				Activity ID	Orig Dur	Early Start	Early Finish	Total Float													
									FY00FY01FY02FY03FY04FY05FY06FY07FY08FY09FY10FY11FY12FY13												
1	01	02	01	04	72	01	01	Perform Pumping on Remaining SST's (29)													

APPENDIX E
SINGLE-SHELL TANK INTERIM STABILIZATION
LEVEL 1 LOGICS

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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 AX-101

NOTES

* This is only a preliminary representation of the package schedule. Detailed information regarding the program and operations activity calendar may be obtained by contacting the program manager. See the detailed program schedule for full details.

2. COB - Code Out Now
BCRT - David's Continued Recovery! Thank
BCST - Thanks Staff Team
BCOL - Flavourful Don Meats
JCO - Park People for Continued Growth
MCS - Pump 1 with additional Don Control 2nd
MCHS - Freshly Hydrogen-Hydrogen
SST - Single Shell Test
WHS - Yoga Fun in the new Dooms

KEY:

Stabilize BY-106

NOTES.

1. Prep layout up a summary representation of the page schedule. Examine drawings and measurements and try to find any overlaps before final planning and reporting are needed. See the drawing program schedule for full details.

2. COG - Class Cl. Bnc.

DCNT - Double Command Arrow-12 Tank
DST - Double Shift Tank
FONA - Programmable Ops Advisor
JCP - Programmer for Command Operators
MTC5 - Five-Step Incremental and Control Stand
S2B-45 - Standard Hydraulic Breathing System
SST - Single Shift Tank
WFL - World Peace Language Blackboard

Stabilize C-103

NOTES:

1. This logic is a summary representation of the program schedule. Duration times are approximate and subject to change. Time for planning and reporting is not included. See the detailed program schedule for full details.
2. CDO - Class One Box:
 DERT - Daily Control Room Task
 DSI - Daily Shift Task
 EGO - Emergency Gas Outage
 EGO - Emergency Gas Outage
 FCS - Fuel Control System and Control of
 HPS - High Pressure Monitoring System
 LST - Low Pressure System
 WPS - Waste Processing System
3. The C-103 "C" Box is from S-800.
4. C-103 is a (1) RPA. It is a (2) S-100.
5. C-103 is a (1) RPA. It is a (2) S-100.
6. The C-103 is a (1) RPA. It is a (2) S-100.

KEY:

Stabilize S-101

NOTES

- 1) The topic of a paragraph: representation of the program schedule. Students should use appropriate and specific key-words (concepts) and time for planning and organizing a set of activities for the stated program schedule. All items
- 2) ODB - Open Up Box
 ODBT - Double Connected Receiver Task
 DST - Double Shift Task
 PDB - Parameterize the Monitor
 RDB - Receptor for Connected Open group
 PRC - Policy for Receptor and Control Set of SDCS
 Standard Hydrogen Absorption System
 EST - Single Shift Task
 MPR - Methyl Propane Receptor Receptor

KEY:

Stabilize T-104

NOTES:

1. This logic was previously implemented at the program table. The logic shown is a preliminary and represents current status. Time for planning and reporting is not included. See the final program schedule for full details.
2. CODE - (Use Out Box)
 ACAT - Double Command/Answer Task
 DST - Double Shift Task
 FCM - Flexible Control Interface
 JCO - Joint Control for Combined Operations
 PFC - Pump Control and General Shift
 SDCS - Small Diameter Control System
 SST - Single Shift Task
 VPL - Visual Position Indicator/Response
3. Pumping of T-104 was previously commenced. T-104 will be the last unit to be pumped at T-104.
4. A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z. AA. AB. AC. AD. AE. AF. AG. AH. AI. AJ. AK. AL. AM. AN. AO. AP. AQ. AR. AS. AT. AU. AV. AW. AX. AY. AZ. BA. BB. BC. BD. BE. BF. BG. BH. BI. BJ. BK. BL. BM. BN. BO. BP. BQ. BR. BS. BT. BU. BV. BW. BX. BY. BZ. CA. CB. CC. CD. CE. CF. CG. CH. CI. CJ. CK. CL. CM. CN. CO. CP. CQ. CR. CS. CT. CU. CV. CW. CX. CY. CZ. DA. DB. DC. DD. DE. DF. DG. DH. DI. DJ. DK. DL. DM. DN. DO. DP. DQ. DR. DS. DT. DU. DV. DW. DX. DY. DZ. EA. EB. EC. ED. EE. EF. EG. EH. EI. EJ. EK. EL. EM. EN. EO. EP. EQ. ER. ES. ET. EU. EV. EW. EX. EY. EZ. FA. FB. FC. FD. FE. FF. FG. FH. FI. FJ. FK. FL. FM. FN. FO. FP. FQ. FR. FS. FT. FU. FV. FW. FX. FY. FZ. GA. GB. GC. GD. GE. GF. GG. GH. GI. GJ. GK. GL. GM. GN. GO. GP. GQ. GR. GS. GT. GU. GV. GW. GX. GY. GZ. HA. HB. HC. HD. HE. HF. HG. HH. HI. HJ. HK. HL. HM. HN. HO. HP. HQ. HR. HS. HT. HU. HV. HW. HX. HY. HZ. IA. IB. IC. ID. IE. IF. IG. IH. II. IJ. IK. IL. IM. IN. IO. IP. IQ. IR. IS. IT. IU. IV. IW. IX. IY. IZ. JA. JB. JC. JD. JE. JF. JG. JH. JI. JJ. JK. JL. JM. JN. JO. JP. JQ. JR. JS. JT. JU. JV. JW. JX. JY. JZ. KA. KB. KC. KD. KE. KF. KG. KH. KI. KJ. KK. KL. KM. KN. KO. KP. KQ. KR. KS. KT. KU. KV. KW. KX. KY. KZ. LA. LB. LC. LD. LE. LF. LG. LH. LI. LJ. LK. LL. LM. LN. LO. LP. LQ. LR. LS. LT. LU. LV. LW. LX. LY. LZ. MA. MB. MC. MD. ME. MF. MG. MH. MI. MJ. MK. ML. MM. MN. MO. MP. MQ. MR. MS. MT. MU. MV. MW. MX. MY. MZ. NA. NB. NC. ND. NE. NF. NG. NH. NI. NJ. NK. NL. NM. NO. NP. NQ. NR. NS. NT. NU. NV. NW. NX. NY. NZ. OA. OB. OC. OD. OE. OF. OG. OH. OI. OJ. OK. OL. OM. ON. OO. OP. OQ. OR. OS. OT. OU. OV. OW. OX. OY. OZ. PA. PB. PC. PD. PE. PF. PG. PH. PI. PJ. PK. PL. PM. PN. PO. PP. PQ. PR. PS. PT. PU. PV. PW. PX. PY. PZ. QA. QB. QC. QD. QE. QF. QG. QH. QI. QJ. QK. QL. QM. QN. QO. QP. QQ. QR. QS. QT. QU. QV. QW. QX. QY. QZ. RA. RB. RC. RD. RE. RF. RG. RH. RI. RJ. RK. RL. RM. RN. RO. RP. RQ. RR. RS. RT. RU. RV. RW. RX. RY. RZ. SA. SB. SC. SD. SE. SF. SG. SH. SI. SJ. SK. SL. SM. SN. SO. SP. SQ. SR. SS. ST. SU. SV. SW. SX. SY. SZ. TA. TB. TC. TD. TE. TF. TG. TH. TI. TJ. TK. TL. TM. TN. TO. TP. TQ. TR. TS. TT. TU. TV. TW. TX. TY. TZ. UA. UB. UC. UD. UE. UF. UG. UH. UI. UJ. UK. UL. UM. UN. UO. UP. UQ. UR. US. UT. UU. UV. UW. UX. UY. UZ. VA. VB. VC. VD. VE. VF. VG. VH. VI. VJ. VK. VL. VM. VN. VO. VP. VQ. VR. VS. VT. VU. VW. VX. VY. VZ. WA. WB. WC. WD. WE. WF. WG. WH. WI. WJ. WK. WL. WM. WN. WO. WP. WQ. WR. WS. WT. WU. WV. WW. WX. WY. WZ. XA. XB. XC. XD. XE. XF. XG. XH. XI. XJ. XK. XL. XM. XN. XO. XP. XQ. XR. XS. XT. XU. XV. XW. XX. XY. XZ. YA. YB. YC. YD. YE. YF. YG. YH. YI. YJ. YK. YL. YM. YN. YO. YP. YQ. YR. YS. YT. YU. YV. YW. YX. YY. YZ. ZA. ZB. ZC. ZD. ZE. ZF. ZG. ZH. ZI. ZJ. ZK. ZL. ZM. ZN. ZO. ZP. ZQ. ZR. ZS. ZT. ZU. ZV. ZW. ZX. ZY. ZZ.

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99. T-104		100. T-104	

Stabilize U-102

NOTES:

1. This logic is a summary representation of the program schedule. Details about the appropriate and necessary program components, time for planning and response is not included. For the detailed program schedule see the full sheet.
2. CDB - Close CDB Valve
 DCAT - Double Command Release Test
 DET - Double Shut Down
 RCN - Reactor Core Normal
 TCD - Temperature Control Device
 TCT - Temperature Control Device
 TSP - Temperature Control Device
 TSP - Temperature Control Device
 TSP - Temperature Control Device
3. U-102 is a Control System
4. This is a logic diagram of the U-102
5. The U-102 is a Control System

Stabilize U-107

KEYWORDS:

2) Their logic is primarily representative of the program itself. However, players are responsible and should be held accountable for their actions. There is no denying that reporting is not included in the game's program, but the fact that it is not included is not a reason to ignore it.

3 DOL - Class One Rec:
DOLT - Draft: Controlled Access Tank
DST - Supply Draft Tank
FGM - Flowmeters Gas Solenoid
FOJ - Junctions for Chemical Operations
FCE - Fuel Cells in common and General
HBT - Standard Hydrogen Monitoring System
SET - Single Shot Tank
UFM - Uplift Froms: Instrumentation

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